

The MILLING WORLD

and CHRONICLE OF THE GRAIN and FLOUR TRADE.

PUBLISHED EVERY THURSDAY MORNING.

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DETACHABLE CHAIN BELTING.

THE world progresses as it substitutes new devices for the performance of well-known operations. The detachable chain belt is one of these new devices which indicate progress. It is not many years ago that its merits, adaptability and real advantages were but imperfectly understood and but casually recognized. It

ing immense strength, unaffected by heat, cold, dryness or dampness, susceptible of being quickly shortened or lengthened, and its motion being under all circumstances positive, one has not far to search to discover the causes of, or reasons for, its popularity. So far as we are now aware Anti-Friction Roller Detachable Chain Belting is manufactured only by the Lechner

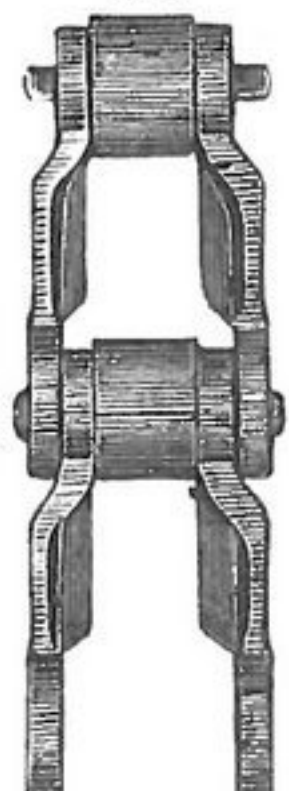
Anti-Friction Roller Detachable Chain Belting has some peculiar features, to which attention may be properly directed before reference is made to the illustrations presented.

The action of the friction roller upon the sprocket wheels and links, greatly reduces friction, and the usual wear upon both, by rolling when coming in contact with the

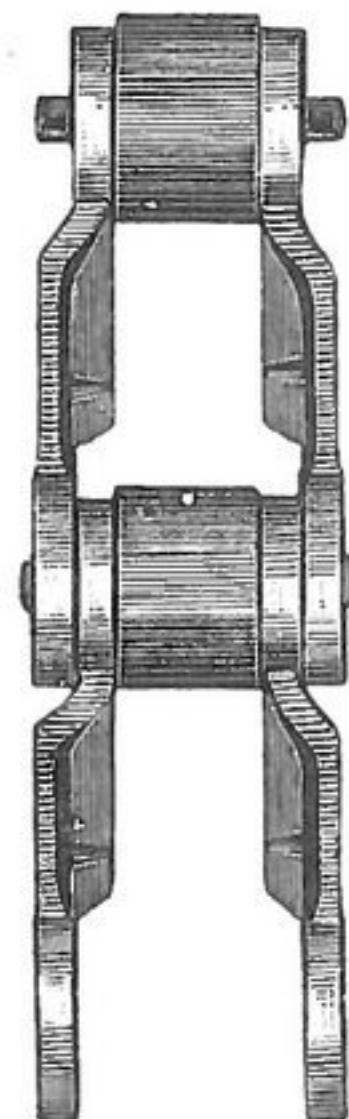
admitting of a lighter chain to do the same work, its strength not being exhausted in dragging in its own weight. The formation of the links is such, that the greatest strength to weight of metal is obtained, there being absolutely no weak point. By an examination of the links and pin after detaching, it will be discovered that the wearing surface, or bearing, covers the en-



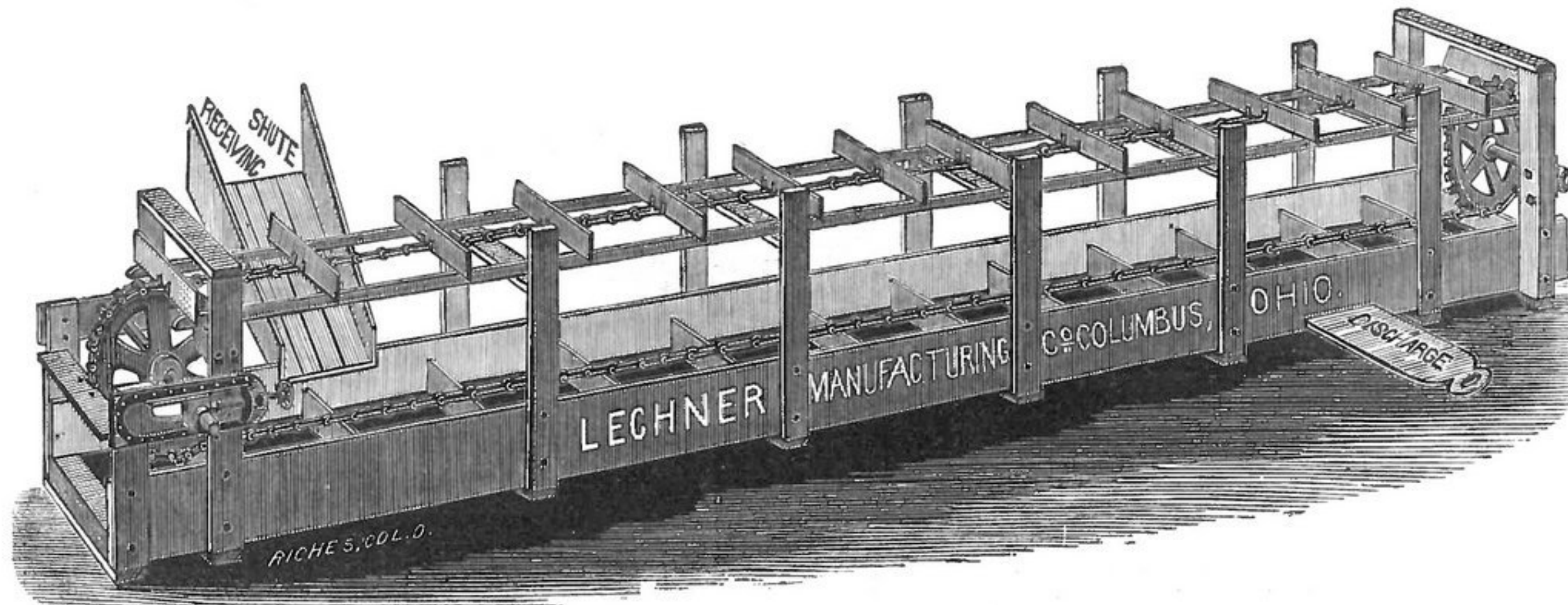
HALF SIZE NO. C.
Working Strain 900
lbs.



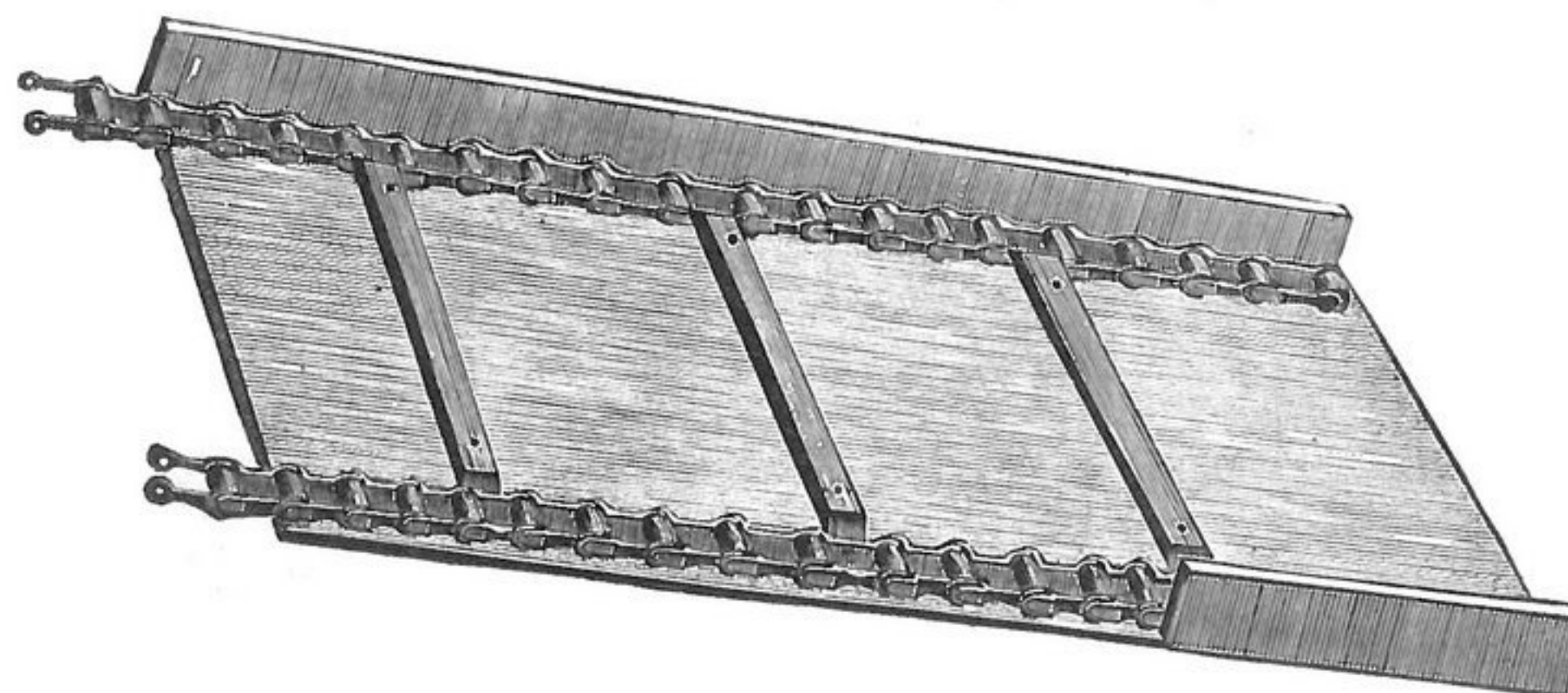
HALF SIZE NO. 0.
Working Strain
1000 lbs.



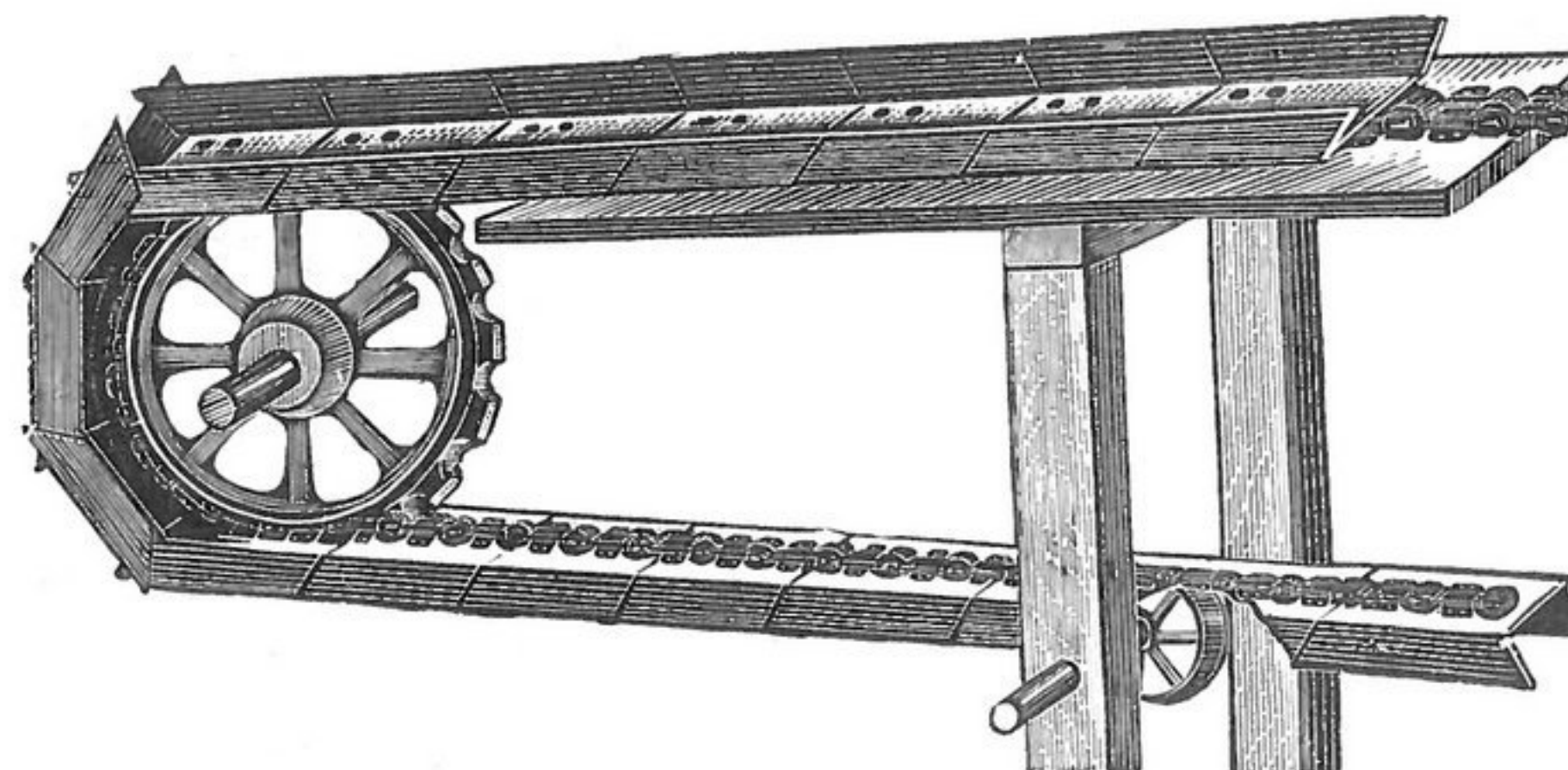
HALF SIZE NO. 00.
Working Strain 500
lbs.



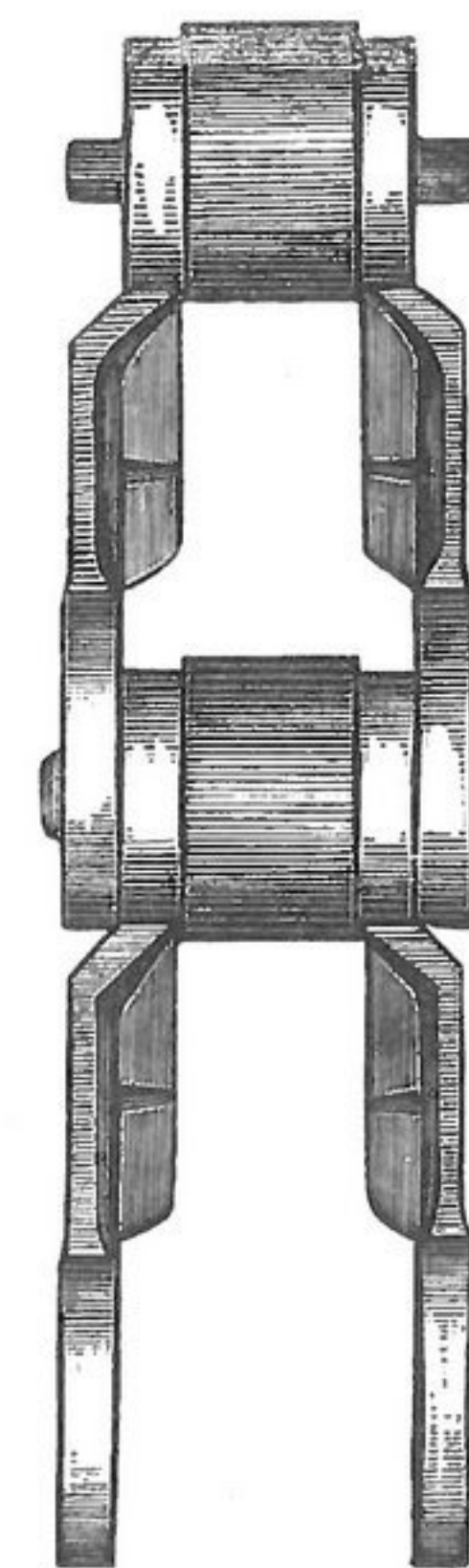
SINGLE FLIGHT CONVEYER.



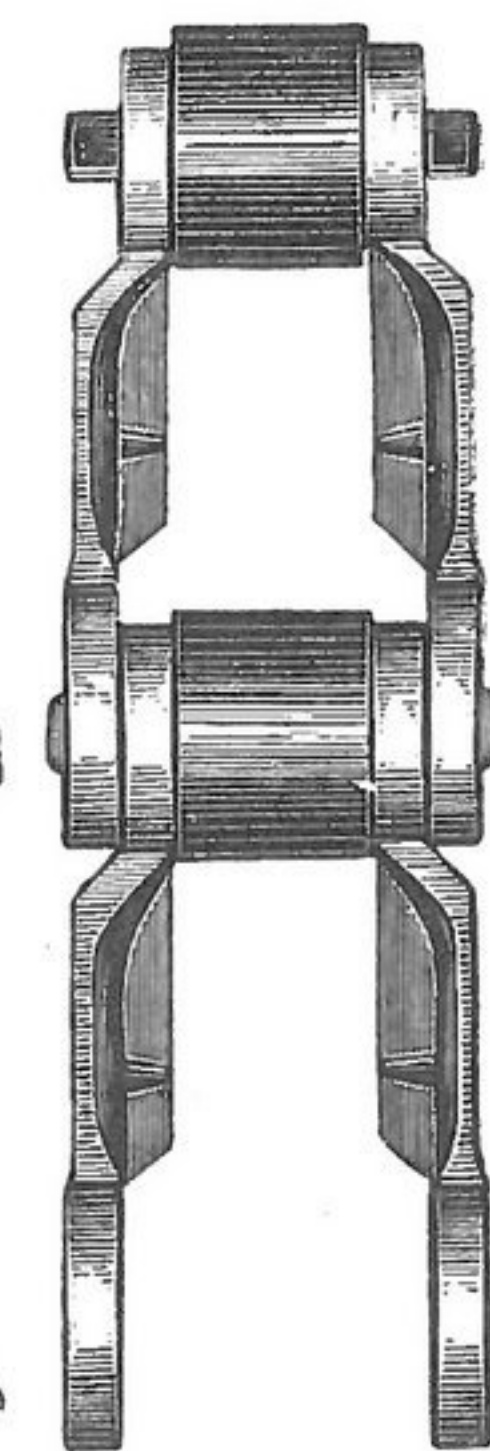
CONVEYERS FOR SAW DUST, TAN BARK, ETC.



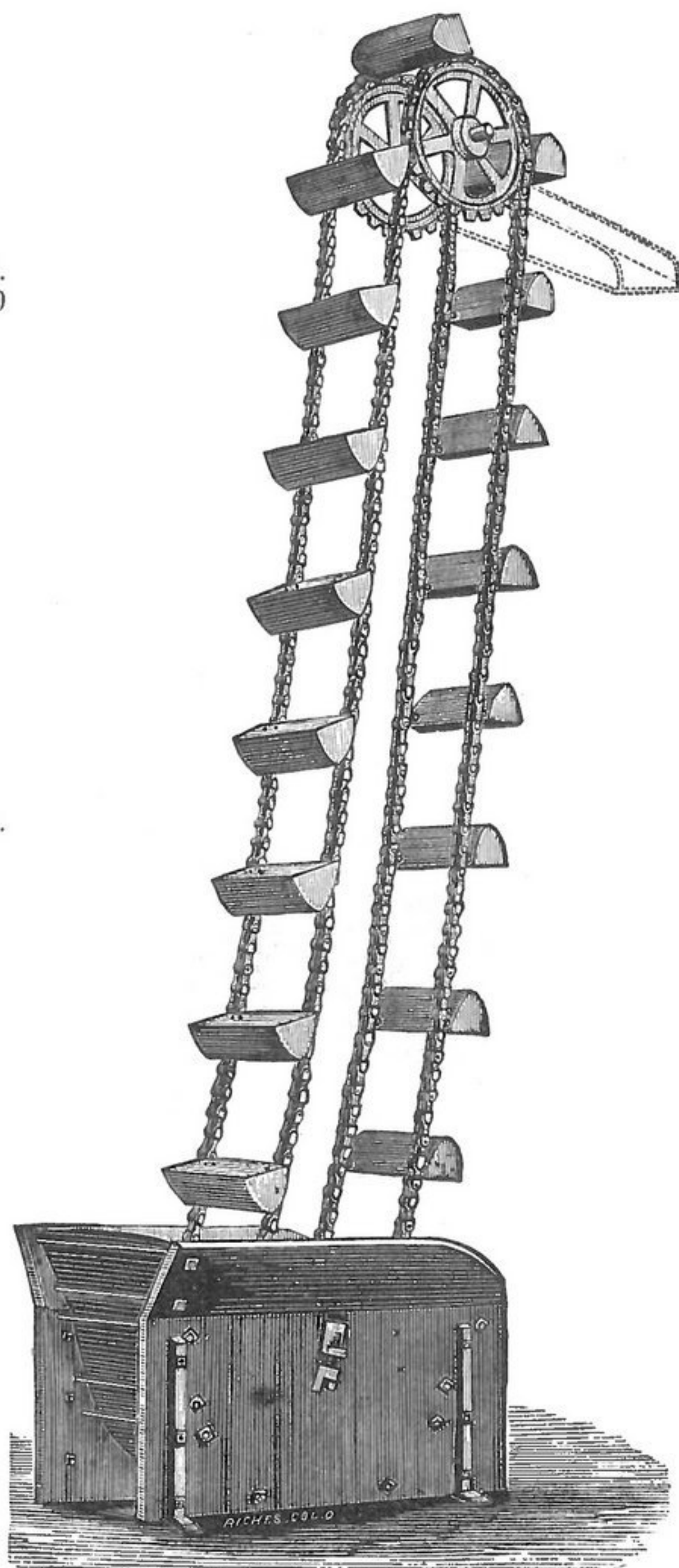
SECTION ENDLESS TROUGH CONVEYER.



HALF SIZE NO. A 1.
Working Strain 2500
lbs.



HALF SIZE NO. A 4.
Working Strain 1600
lbs.



DOUBLE STRAND ELEVATOR.

may be safely asserted that it is one of those inventions which have really fought their way into popularity. While it is not intended to take the place of leather or rubber belting under all conditions of service, it yet possesses unquestionable superiority to those recognized transmitters of power under a variety of circumstances. Possess-

Manufacturing Co., of Columbus, Ohio, and as interesting to our readers, we present some illustrations of it, its attachments, and applications, simply stating that the company will, upon application, take pleasure in supplying detailed information to such of our readers as may be interested. It will not be amiss, however, to state that

sprockets, until seated, when it rests quietly till released by leaving the wheel, causing no scrape whatever. Again, the chain when used for conveyers, in its movement on a plane or incline, rolls upon the rollers, thus requiring greatly reduced power to drive the conveyer than in the case where chains are dragged upon their flat surface, thus

tire portion of the pin between the end grooves or notches, there being no wear upon the ends of pin or outside links, for the reason that the pin is held rigidly, not moving in the square slot. The pins and links are also greatly strengthened by the tubular bearing, or that portion of the link upon which the roller is mounted, and

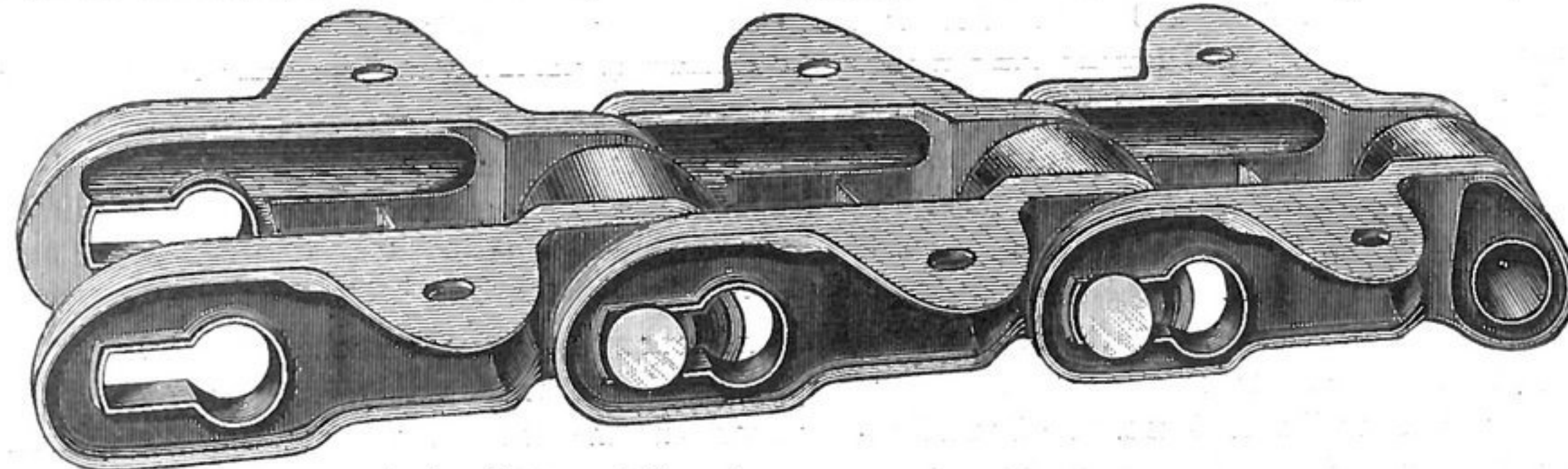
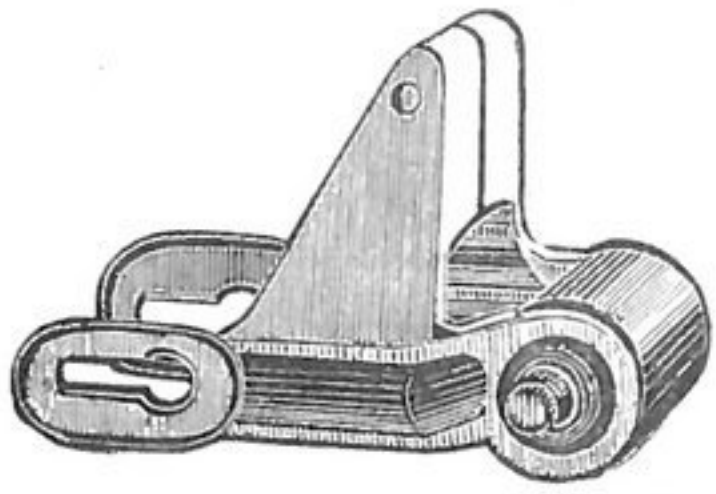
which taken together, makes the strain upon the pin, a shearing strain upon the ends, thus giving it greater strength than it would otherwise have. It is detachable in every link, has great wearing surface, runs with little or no friction, very little noise, can be run with either side to the wheel or in either direction equally well. This roller chain is made of steel or best malleable iron, the malleable only being detachable. It runs smoothly, is a substitute for leather and rubber belting and cog gear wheels, over which it has many advantages. There is no lost motion, no slipping, by reason of

trough to rest upon, and to which they are bolted, each trough having but one fastening, to allow them to pass over the sprocket wheels. The troughs are so arranged on the chain that they overlap, and in passing over the sprocket at the point of wheels, discharge, do not separate, but are always connected, so that there is no possibility of their becoming entangled, or allowing the contents to fall upon the wheels. This forms an endless open trough, which runs upon a plane provided for the purpose, and may be run at an incline. The conveyer on its return; is carried back by means of

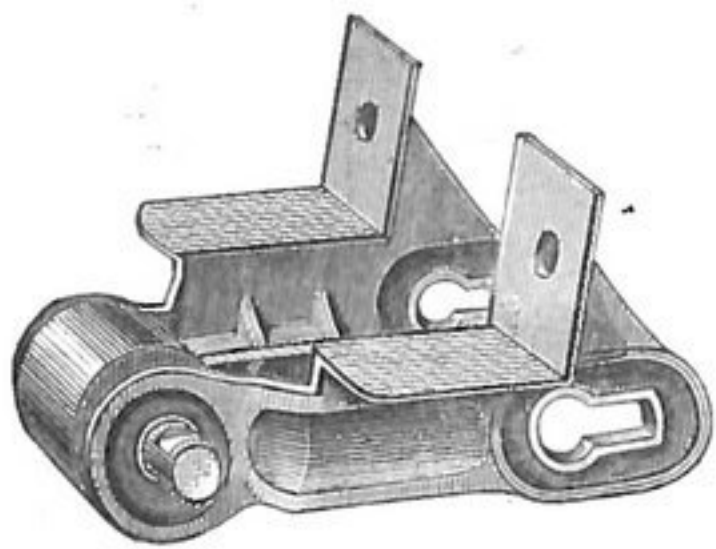
BLENDING WHEAT.

Many of the more advanced bakers in this country, says the "Miller," prefer the millers of the United Kingdom to grind the separate varieties of wheat into flour each by itself. Millers in England draw their wheat from all parts of the world wherever the cereal is grown, and a large number of them have adopted the new method of gradual reduction by rollers, for the purpose of producing the highest quality of flour. This change in method has certainly produced a great change in result, and if the bakers do not get their flour made exactly as they want it

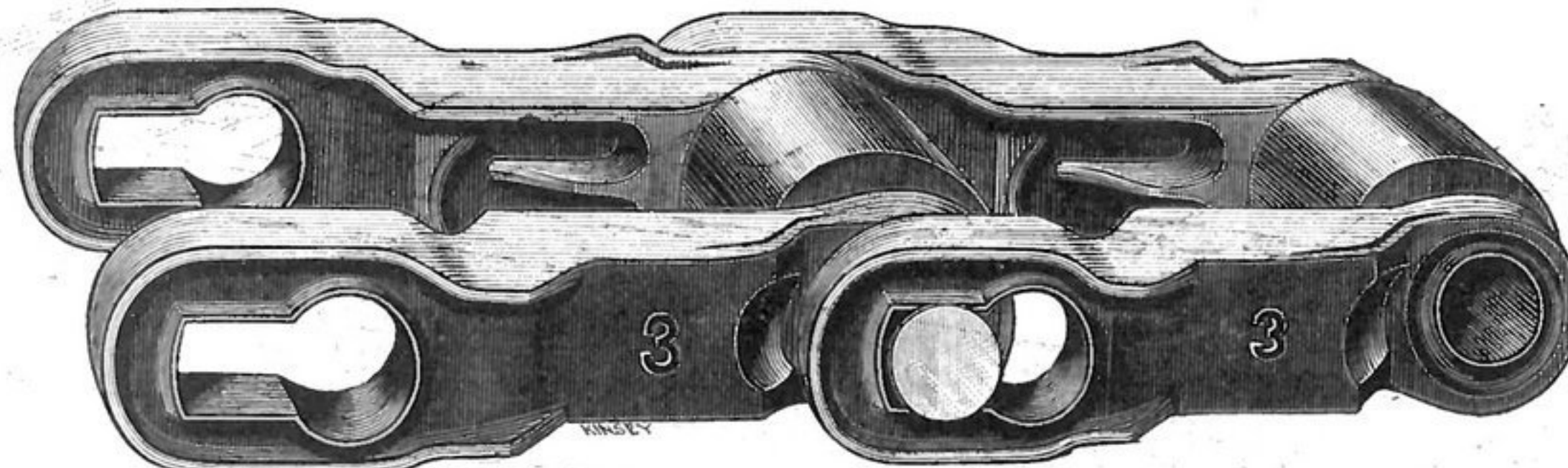
val," and that this seems the real way for our millers to meet American flour competition, and not in the hopeless hankering after an import tax on foreign flour. No doubt there are a number of millers in this country, just as there are a number of farmers, who hanker after such a tax; but the great majority of them have more confidence in their own powers than to "hanker" after a mode of salvation which, humanly speaking is not at all likely to be realized. The proper qualities of healthy and palatable bread are now as well known as the simplest problem in arithmetic. It must be inoffensive



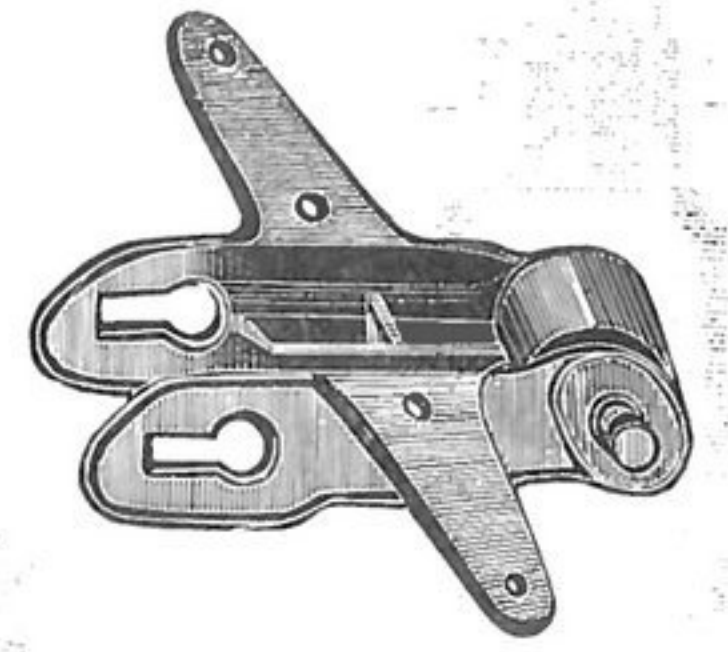
CARRIER—Composed of attachments, forming a solid floor. Single or double strands may be used.



ATTACHMENTS.



NO. 3.—4-in. pitch, 3 3/8-in. width, 11-16 steel pin. Working strain, 4,300 pounds.



ATTACHMENTS.

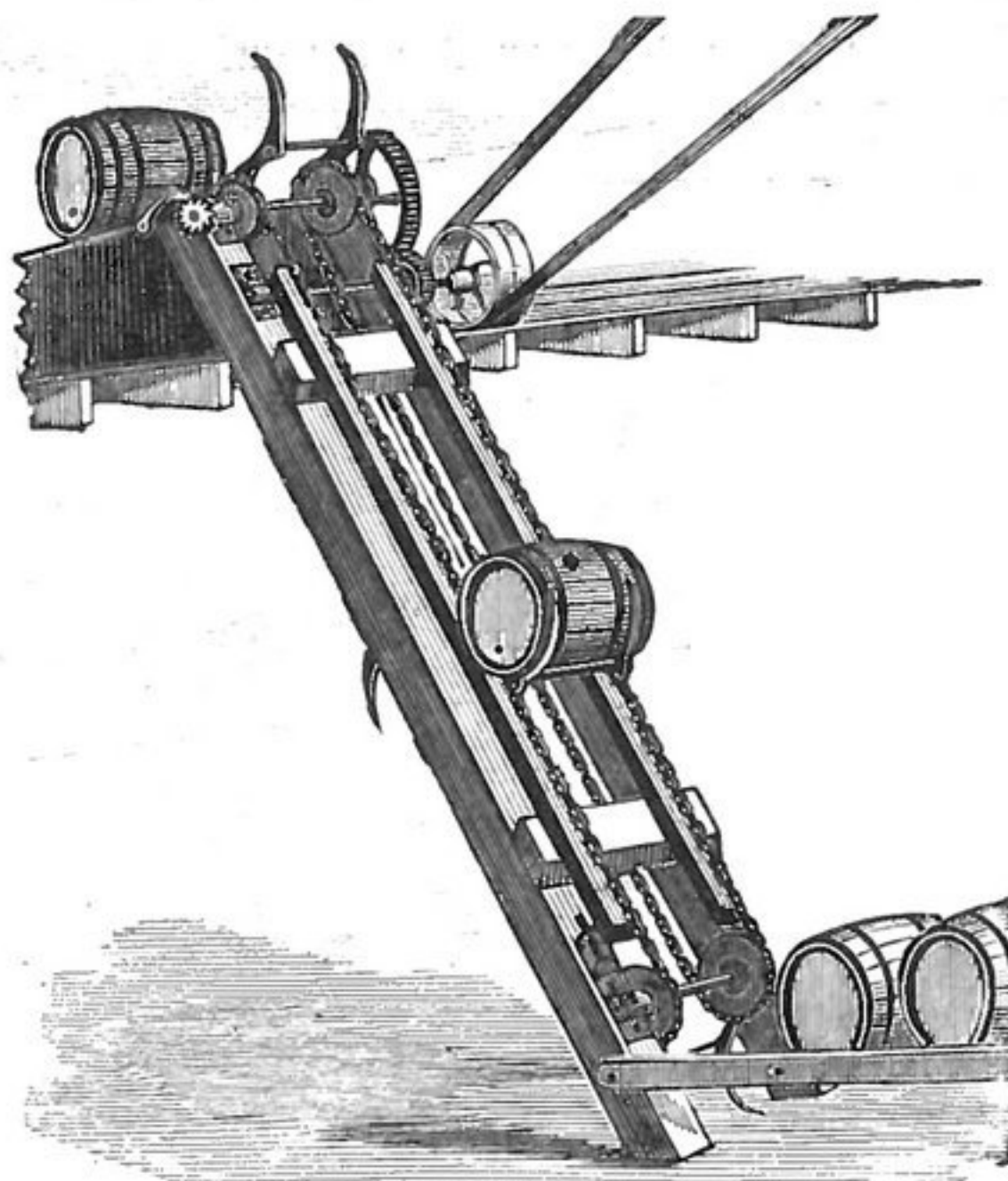
which a uniform motion is attained, greatly enhancing the working of all machinery. Fully ten per cent. of power is lost by the slipping of leather and rubber belts and the friction resulting therefrom rapidly generates heat, which hardens the face of the one and rots the fabric of the other, and is one of the most prevalent causes of fire in mills, warehouses, etc. Frequently space is of great importance; roller chain of from two to four inches in width is the equivalent of a 12 to 30-inch leather or rubber belt, and the sprocket wheels for chain will cost from one-fourth to one-half less than pulleys for leather or rubber belting. Chain elevators can be driven from the bottom. Let us turn now to the illustrations.

A double strand elevator is desirable where buckets of 12 inches and upwards are used, or for heavy work. This style and also the single strand, may be substituted to replace gum belts and to run in same legs with but little alteration, and while possessing all the advantages peculiar to chain belting, are much lighter than the gum belts they replace. It can be driven from the bottom.

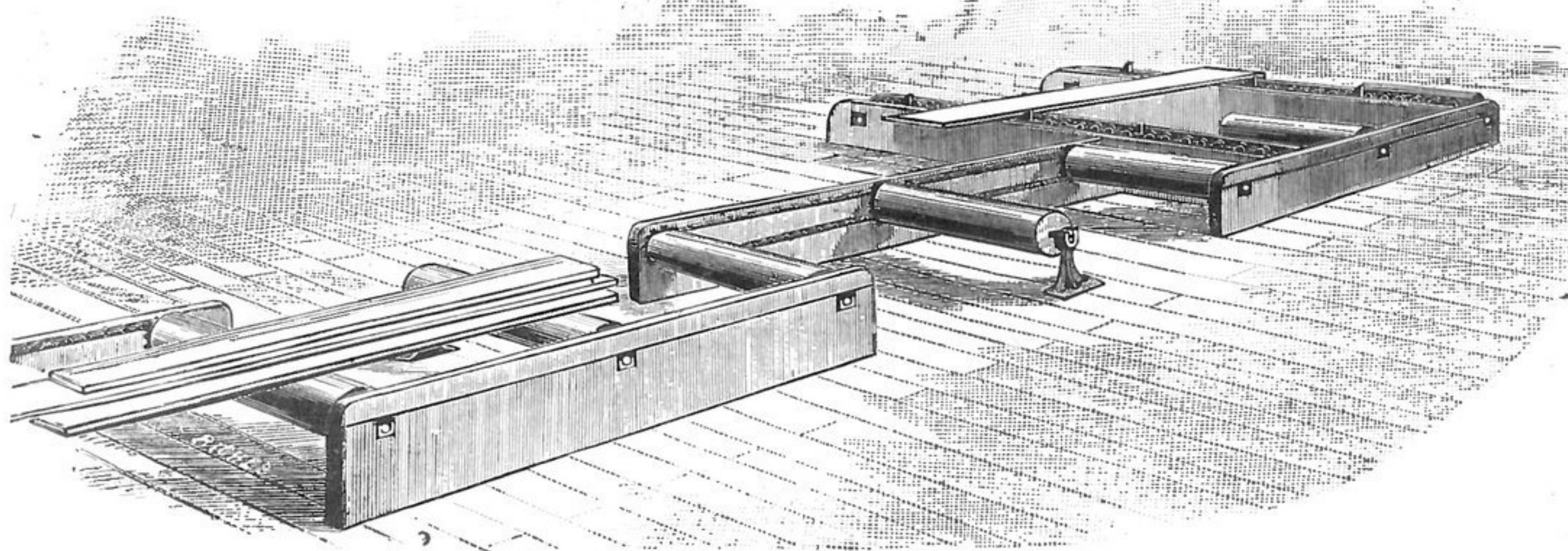
The single flight conveyer is especially adapted to handling grain. This form of conveyer leaves no tailings in trough, and different grades or kinds may be handled by the same conveyer.

The upper section of cut illustrating conveyers for sawdust, tan bark, etc., shows a straw and pulp carrier for paper and pulp mills. The lower section is of a conveyer for tan bark, sawdust, grain, malt, seeds, etc.

The endless trough conveyer, herewith illustrated, is one of the many uses to which roller chain is applied with great success. Anti-friction roller chain is so constructed that the chain is carried upon its rollers, which serve as trucks, instead of dragging, thus requiring but little power to drive it. Endless trough conveyer chains consist wholly of flat or "D" attachments see cut of carrier, which forms a solid floor for the



BARREL AND KEG ELEVATOR.



LIVE ROLLS AND TRANSFER.

iron or wooden pulleys, used as idler wheels, upon which the inside or bottom of trough rests. Conveyers of this class can be made of either single or double links of chain, according to the size of trough and capacity required, which is unlimited. The conveyer, being made entirely of iron, is fire-proof, and is well adapted to carry hot ores, coal, coke, stone, etc. We give illustrations of a number of sizes and styles of chains and attachments therefor, simply to show its wide adaptability of application, as the limits of our space forbid more extended description of this mechanism which has become so necessary for many purposes.

—that is, if they get more blending of wheat in its manufacture than they desire—they have it, as regards strength and color, of a far higher quality. A contemporary, the "British and Foreign Confectioner," says: "Millers in Glasgow have been compelled to mill singly American spring and winter wheats. Any success the millers there have against American flour is due to that and to selling the flour unblended." The same journal hesitates calling that man a baker who allows any miller to blend or "grist" for him. "We are told that grist milling, the milling of a number of wheats together, is dying out in Glasgow with no hope of re-

to the eye, must possess a pleasant flavor, and have sufficient glutinous strength to prove a reliable staff of life. If these properties are not to be obtained in sufficient proportion in one variety of wheat, all are present in a combination of the cereal. If it be the fact that the cream of the world's bread-making wheat is grown in America, we do not think there is any substantial reason why, by proper blending, the other wheats of the world should not produce a substitute for the "cream" that would prove equally satisfactory to the great majority of bread eaters.

Wheat blending can be more thoroughly done now than it could be done during the time that the old method of milling by millstones was in existence. In connection with the system of gradual reduction by corrugated rollers, wheat graders or sizers are introduced, and also wheat mixers, by which the wheat can be mixed or blended to

any percentage, so that if one variety is deficient in color, for example, the defect can be supplied by the introduction of a certain proportion of another sort better endowed with this quality. If strength is wanted, Ghirka or South Russian wheat can be added to the mixture, to secure the element of strength to flour made from weaker varieties of wheat; and wheat that gives the flour a disagreeable flavor, or taste to

bread made from it, as it is said some Indian wheats do, can be reduced to a minimum in the mixture, if there be no means of getting rid of the obnoxious quality in the process of manufacture. Much has been done, and more can still be accomplished, in the manufacture of wheat into flour, to eliminate from the latter everything that is offensive to the eye for bread-making purposes, but if there is a flavor or scent inherent to the cereal, specifically speaking, it may be impossible to get rid of it. The miller may roll and purify his flour as he will, but the scent or flavor of the wheat will hang round it still. If, however, the flavor cannot be

entirely removed, it may be virtually suppressed by blending the scent-producing wheat with a variety which will supply the flavor connoisseurs in wholesome and palatable bread desire. One thing is certain, that we have used bread made of flour which was manufactured from wheat in which there was a considerable percentage of the Indian cereal, in which there was no disagreeable flavor detachable by the ordinary human palatable apparatus. If the very cream of bread-making flour is produced by the State of Minnesota, in America, we have in England wheats which, when properly milled by the means the millers of this country now have at their disposal, will produce bread that cannot be surpassed in flavor if properly made by the baker. England, it is true, does not supply so much wheat as her millers can grind, but so long as they can mix or blend the wheats from other harvest fields, including those of the United States, our own Northwestern Canadian regions, or our Indian Empire and our Australasian colonies, the bread eaters who have to depend on English-made flour will have nothing to complain of. Blending wheat by the means we now have for the purpose can be done with the greatest success, so as to heighten or improve the quality of the flour manufactured in English mills. Wheats possessing color and strength can be used to add to those qualities in wheats deficient in either; and if single wheat grinding can be done profitably, this can be effected to suit the taste of the baker who desires to do his own flour blending. Bread baking is now to a great extent becoming a corporated rather than an individual industry, and the companies which supply the bread to such communities as Glasgow, for example, will secure flour which is the best and most profitable for the purpose. Color and strength are indispensable, not only for the taste of the bread consumers, but for the profits of the baker, be he an individual or a company, and both can be secured by the miller if he has recourse to judicious blending or mixing of the wheat, and if he uses to the best purpose the means at his command for its manufacture. The change in value of English-made flour by the new process represents a very fair profit to the manufacturer; and so long as the latter has the means of realizing that profit in his own hands and by his own exertions, he will not waste his powers in hankering after such an unattainable thing as the imposition of a protective duty on foreign flour.

A LITTLE BIT OF HISTORY.

Letters Patent of the United States No. 311,811, were granted to Horace P. Chapman, February 3, 1885, for improvements in flour packers, and he assigned to Howes, Babcock & Ewell, Silver Creek, N. Y. This patent, copy of which by the way, failed to reach us in time to permit of its presentation heretofore, covers the application of anti-friction rollers to the movable platform of a flour packer for the purpose of facilitating the movements of the platform in the packer frame. This improvement, although of a very simple character, has been found to be exceedingly useful, and has been extensively applied to flour packers by Howes & Ewell, of Silver Creek, N. Y., and also by the Barnard & Leas Manufacturing Co., of Moline, Ill. Howes & Ewell commenced to apply it to their flour packers in the spring of 1881, and Barnard & Leas commenced to apply the same in the fall of 1881.

Letters Patent No. 256,096 were granted to Barnard & Leas for this improvement April 4, 1882, and Howes & Ewell, as soon as they learned of this patent, took steps to contest Barnard & Leas' claim to the invention. It was found that the invention was first applied to a flour packer at the

Cascade mill in Akron, Ohio, in September 1880, and that two parties, Lewis Creveling and Horace P. Chapman, claimed to have originated the improvement. Both claimants assigned their respective rights to Howes & Ewell, and applications for patent were then filed on their behalf, and an interference was instituted between those applications and the patent to Barnard & Leas, for the purpose of determining the question of priority of invention. After all parties had taken their testimony, the case was argued before the Examiner of Interferences, who decided in favor of Chapman, an appeal from this decision was taken by Barnard & Leas to the Board of Examiners in Chief, who decided in favor of Barnard & Leas. From this decision an appeal was taken by Creveling & Chapman to the Commissioner of Patents, in person, who affirmed the decision of the Examiner of Interferences and decided the case in favor of Chapman. Under the law, this was the final decision in the case, but a practice had sprung up in the Patent Office whereby contestants who had been defeated before the Commissioner removed their cases before the Secretary of the Interior for review, and Barnard & Leas took advantage of this practice and appealed to the Secretary. This appeal, like all others relating to patents, was referred to a subordinate officer of the Department of the Interior who held the case a number of months, and finally made a decision which awarded priority of invention to neither of the contestants but reversed the decision of the Commissioner. Howes & Ewell were not satisfied with this decision and were about to take further proceedings when the decision of the Supreme Court in Hoe vs. Butterworth, Commissioner, swept away the so-called appeals to the Secretary of the Interior, by holding that the Secretary had no jurisdiction. Howes & Ewell immediately applied for the issue of the patent to Chapman, in accordance with the decision of the Commissioner previously made, and after a full consideration of the case, the Commissioner ordered the patent to issue. It will be seen therefore, that the above patent was granted after a most thorough consideration of the respective claims to the invention, and after all remedies had been exhausted by the contestants.

Messrs. Wilhelm & Bonner, of Buffalo, N. Y., Wm. C. McIntire, Esq., of Washington, D. C., and E. S. Jenny, Esq., of Syracuse, N. Y., represented the interest of Howes & Ewell; and T. H. Alexander, Esq., and Geo. W. Dyer, Esq., of Washington, D. C., represented Barnard & Leas.

A SOCIABLE TENDERFOOT.

"I have always found Texans quiet and unostentatious people," said the drummer.

"Quiet an unostentatious? Good gracious! Really mean that?" said the pale man with the scar on his chin.

"Yes, I speak merely from my own observation and experience."

"Then you were never in Albiline in Western Texas, were you?"

"Naw."

"Thought not."

"Why did you 'thought not'?"

"Because there I met a gang of Texans who were so ostentatiously obtrusive that it's a wonder I'm not now in a land that is fairer than this. Tell you how it was I was on the road with 'The Wages of Sin.' We played one night at Albiline. It was a very small place then. The theatre was over a livery stable. There were half a dozen saloons in the place and not much else. Most of the people who made up the audience came in from the prairie. The majority of them were cowboys and teamsters. Many of them without coats—all carried revolvers and wore great jangling

spurs. They were noisy and made audible comment on the actors and acting.

"After the performance I went across the street to the principal saloon to get a drink. It was a long narrow room with a counter running its full length. When I entered, the counter was lined with cowboys. All were drinking and talking loudly. I walked to the further end of the bar and ordered a modest snifter. While drinking it I realized that the eyes of every cowboy in the place were directed toward me. The loud talk subsided.

"'Bet you \$5, Jim, you can't shoot a hole in it without hurtin' him.'"

"'Jim ain't drunk enough to miss a mark as big as that.'"

"'Betcher life I ain't,' said Jim, a short light-haired man. 'I go ye Tobe.'"

"But the feller might kick.'"

"Oh, blast his kickin'."

"I know, but—but 'twould be more polite to git his consent.'"

"I knew they were talking about me, and I wasn't very comfortable. I started toward the door. The brigand, whom they called Jim, stepped right out in front of me and said:—

"'Pardner, you're one o' them actor fellers, ain't you? Well you're a daisy, you are. You gave us a good show an' now we want to be sociable.'"

"I explained that I would like very much to be sociable.

"'Kerrect ye are. 'Cause the tenderfoot what can be sociable an' isn't sociable must be made sociable. Now sing us a song.'"

"I explained that I couldn't sing; that my role was the heavy villian.

"'Villian, eh? Horse-thievin' an burglaries I reckon,' said Jim. 'Well that goes with us, but you just sing us Way down on the Swanee River. Tune up.'"

"He held a pistol under my nose so close that I could smell the grease on the cartridge. Another pirate in leather leggings put his six shooter to my ear and said: 'Now proceed to warble.'"

"'Toot,' said Jim, and I tooted. I know as little about singing as I do about the internal economy of a saw mill, but I gave the Swanee River and got an encore.

"'Now give us Othello,' said Jim.

"'But Othello isn't a song.

"'Doesn't make a dam bit o' difference; give her to us just as she is without any frills.'"

"I gave them the Farewell-the-Plumed-troops speech from Othello.

"'Uncle Billy's got to hear that,' said some one. 'Yes, Uncle Billy's got to hear it,' said they all, and they marched me down the straggling street at 12 o'clock at night, stopped in front of a shanty, kicked in the door, woke up Uncle Billy, who sat on the side of his bed and in the dark, for he couldn't find a lamp—listened to me while I repeated the Othello speech.

Uncle Billy had a demijohn and set 'em up. Then my escort took me to the midnight train, and as I got on board, each shook me by the hand and stated that I was "the sociablest tenderfoot" they had met in years.

SITUATIONS WANTED.

Advertisements under this head, 25 cents each insertion for 25 words, and 1½ cents for each additional word. Cash with order. Three consecutive insertions will be given for the price of two.

SITUATION WANTED.

Wanted by a good practical miller a permanent situation, in a small merchant or custom merchant mill. Married man. Has had life experience. Can come April 1st. Good reference. Apply, stating wages given, E. R. HUGHES, Waterville, N. Y. 1517

SITUATION WANTED.

By a first-class miller to take charge of a custom and merchant mill, or will rent small custom mill. New York State preferred. For further particulars address MILLER, Box 72, Bradford, N. Y. 1415

SPECIAL ADVERTISEMENTS.

Advertisements of Mills for Sale or Rent, Partners Wanted, Machines for Sale or Exchange, etc., etc., cost 1½ cents per word for one insertion, or 4 cents per word for four insertions. No order taken for less than 50 cents for one insertion, or \$1 for four insertions. Cash must accompany the order. When replies are ordered sent care of this office, 10 cents must be added to pay postage.

WANTED.

Traveling salesman, must be a man of experience. Address, GILBERT & JONES, Jamestown, N. Y. 1814

WANTED.

A good custom mill to run on shares. Satisfaction guaranteed. Good reference given if required. Address at once. P. O. BOX 44, Lycippus, Westmoreland county, Pa. 14

YOU CAN BUY THESE CHEAP.

Three McCully Corn Cob Crushers. The above articles are brand new, in perfect condition, just as they left the factories, and will be sold very cheap for cash. Address S. 30, care THE MILLING WORLD, Buffalo N. Y. 15

I HAVE

650 Elevator Cups, 4½x3½,
700 Elevator Cups, 4x3,
For which I have no use, and will sell cheap. They were made by W. P. Myer, of Indianapolis, Ind., and are entirely new. If you want a bargain write me. Address, J. S. K., care THE MILLING WORLD, Buffalo, N. Y. 15

FISKE'S BOLTING REGULATORS

Keep the bolting cloth clean in all kinds of weather and in handling all kinds of stock. Increases the bolting capacity from 25 to 50 per cent., and prevents making specky flour. No shafting, belting or gearing required. Any one can attach it. I have a few of these devices which I will sell cheap. They are brand new. Send for description and price. Address MILL-WRIGHT, care THE MILLING WORLD, Buffalo, N. Y. 15

PARTNER WANTED.

To remove the machinery of a new three-run mill to a site in a splendid wheat country in northwest Nebraska, with a view to adding new process machinery and elevator. The water power is completed, supplied by springs and not subjected to floods. Mill can be built near railroad track, with the Black Hills and the Northwest for a market. A splendid chance for a man of ordinary means. Address, A. R., care of MILLING WORLD. 13

GRIST MILL AND SAW MILL FOR SALE.

This property will be sold to the highest cash bidder at the Court House, Newark, Licking county, Ohio, February 28, 1885. Appraised at \$1,900.00. This property is situated at Chatham, 7 miles Northwest of Newark. Two run of stone. 6½ acres of land, also dwelling, stable, etc. A good 24-horse power engine. Those wishing a bargain or for further information will please address J. I. WRIGHT, Chatham, Licking county, Ohio. 15

PUBLIC SALE.

On Friday, March 13th, 1885, I will offer at public sale on the premises, the Washington mills, consisting of grist mill, saw mill, three dwelling houses, stable, carriage house, and about fourteen acres of land and good water power. Situated on the Little Miami river, six miles west of Xenio, Greene county, Ohio, two miles east of Bellbrook, where the great celebrated magnetic springs is; handy to post office, schools, churches; in a good wheat growing neighborhood. Terms of sale one-half down, the remainder in one year at six per cent. interest. Address, JOHN STRAIN, Assignee, Springvalley, Greene Co., Ohio. 16-19



HOW DOES THIS SUIT?

"Cooch's Bridge, Del., Aug. 25, '84.
"Messrs. Thompson & Campbell,
"Philadelphia, Pa.

"Gentlemen: Your machine was sent here against an —, on condition that we should keep the best, and we tried each machine, and are frank to say that if your machine cost us \$500 and the other was offered us as a present we should take yours, as we cannot find a fault with it. The above machine has a capacity of 50 bushels per hour."

We think best not to publish name, but it will be given upon application. Address, THOMPSON & CAMPBELL, Philadelphia, Pa.

BOLTING CLOTH.

Do not order your cloth until you have conferred with us. It will pay you, both in point of quality and price. We are prepared with special facilities for this work. Write us before you order. CASE MANUFACTURING CO.,

Columbus, Ohio.

Office and Factory, 5th Street, north of Naughten.



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 THOS. McFAUL, - - General Agent.

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Card of Rates sent promptly on application. Orders for new advertisements should reach this office on Tuesday morning, to insure insertion in the week's issue. Changes for current advertisements should be sent so as to reach this office Saturdays.

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Correspondence is invited from millers and millwrights on any subject pertaining to any branch of milling or the grain and flour trade.

Correspondents must give their full name and address, not necessarily for publication, but as a guarantee of good faith.

This paper has no connection with any manufacturing or mill furnishing business. Its editorial opinions cannot and will not be influenced by a bestowal or refusal of patronage. It has nothing for sale, but its space to advertisers and itself to subscribers.

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 OHIO.....Robt. Colton, Sec'y.....Bellefontaine.
 NEW YORK.....J. A. Hinds, Sec'y.....Rochester.

OUR CLUBBING LIST.

NOTE—You can save money by availing yourself of the following offers. You can please every member of your family by accepting one or more of the following offers. To save money, and at the same time make the family happy, ought to be the main object of every married man's life. See how you can do this.

Take these for Yourself.

THE MILLING WORLD, per year.....\$1.50

WITH

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American Architect, weekly... 6.00 " " 6.50
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Frank Leslie's Illus. Newspaper..... 4.00 " " 4.50
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St. Nicholas.....(\$3.00 per year) 4.00
Harper's Young People..... 2.00 " " 3.00

Readers of "The Milling World" will confer a favor upon the publishers, and derive material benefit themselves, by mentioning this paper when opening correspondence with advertisers. Drop us a postal card when you have written to an advertiser, give us his name, and then we will put you in the way of getting the benefit. Don't forget this.

THERE is nothing like American machinery. Read the advertisement of the Geo. T. Smith Middlings Purifier Co., and see how it has captured Germany.

IT is stated that the cheap price of flour has increased its consumption all through Europe to a considerable extent, and especially so in England and Germany.

THOSE of our readers who may take in the World's Exposition, at New Orleans, will find a very nice display of millers' requisites in the exhibit of M. Deal & Co., Horace Deal and Deal Bros., in the main building, columns G G, Nos. 47 and 48,

The floor space occupied by the Deal combination is fifteen by twenty-five feet, and the irrepressible Henry J. Deal is in command, a pretty good guarantee that the visitor will know all about the merits of the articles exhibited.

THE adoption of the roller mill has materially affected the business of mill-pick manufacture, and quite a number of firms and individuals formerly engaged in this line have turned their attention to other branches of industry. Old established firms with a reputation for their picks, however, such as Geo. W. Heartley, of Toledo, Ohio, still hold a large patronage, and as evidence of this fact we note that within the past few weeks he has supplied three large mills with complete outfits of new picks.

IT is reported that Col. Mapleson's recent season of opera at St. Louis left him several thousands of dollars out of pocket. The Colonel is not a regular reader of THE MILLING WORLD else he would have known better than to have attempted to give the people of St. Louis an opportunity of putting him in a hole. No city can properly sustain 'Er Majesty's Hopera whose people are not heavily interested in speculative enterprises or whose millers are not profitably pursuing their calling. Now St. Louis has little reputation as a speculative centre, and her millers are not alarmingly prosperous just now. Indeed, it is reported that her flour mills are rapidly closing, owing to the present low price of the staple. This applies, however, we are told, more particularly to small concerns which have not the most approved methods of milling, for at present prices wheat must be milled very close to insure any profit whatever. The following are those which have closed: The Meramec, Regina, United States, Saxony and Alton City. The Camp Spring Mill will close in about three weeks for thorough repairs. The Park Mills will close when present orders are filled, and the Plant Mills are running on half time. Of the others, there is no immediate prospect of closing.

As a comment upon the currently accepted theory that machinery cheapens the cost of the products, we are told a very significant fact with regard to elevator charges in New York. Twenty-five years ago when canal boats were discharged in that city by manual labor, shoveling the grain into a bushel measure and striking off the surplus with a price of board, the charges for such work were one half cent per bushel. At this rate the men engaged in the business did perhaps not accumulate fortunes, yet they undoubtedly lived quite well. At the present time, with all the recent improvements made in elevators and elevating machinery, the big warehouses in New York City, capable of unloading about 6,000 bushels of grain per hour, charge the same price, one-half cent per bushel, as was paid 25 years ago. Machinery has, at least in this case, not reduced the prices formerly paid for the same work done by manual labor. A bill now pending in the legislature at Albany, aiming at a reduction of these charges, is as a matter of course, heavily contested by New York parties and, as similar bills have been defeated before, there is no reason why the present one should not share the same fate. At the same time New York merchants are complaining that freights from the West are trying to find other sea port terminals than the Empire City.

IF European millers were only able to discover some means of keeping out these horrible Americans who persist in forcing their flours at low prices into all the countries of Europe. We have almost become habituated to hearing the constant agitation against the American product in Germany and France,

but the list is growing. The Dutch millers are now clamoring loudly for protection against the constantly increasing competition from America. Belgium has caught it and wants to increase the tariff on flour so that home mills can compete with the imports in the home markets; and in this manner every country on the European continent is making the most strenuous efforts to increase the price of their food. The millers of Germany are, however, not willing to submit peacefully to an increase of tariff on grain without a corresponding increase on flour. While the new tariff contemplates an increase on wheat of 200 per cent. the proposed increase on flour is only 66⅔ per cent. "What is to hinder our competitors from sending flour instead of grain to our markets, and thus ruin the entire milling industry?" says the president of the German Millers' Association in a recent circular. It is a fact indeed that the late agitation in Germany so ostensibly in favor of the agricultural population has given us a striking example of a thoroughly selfish, yet ignorant form of political economy by an attempt to prohibit the import of grain by high tariffs and ignoring the close relationship that exists between grain and flour. Something will undoubtedly be modified before the proposed changes are accepted as laws.

A NOVELTY by way of an advertisement reached our table the other day. Filled with some heavy substance, and with our address upon a tag, a little bag labelled "A Remedy for Hard Times," was found among the morning mail. The reader can imagine our emotions. What did this bag contain? We knew we had enemies who would not grievously deplore our sudden removal from this vale of tears. Sent as a sample of merchandise through the mails, without the address, or other means of identification of the sender, upon the tag, should it perform its deadly mission, upon whom would the heavy hand of justice fall in vengeance of our assassination? We gazed upon the bag, and unconsciously drifted into reverie. Our little household was headless; the "kid" fatherless, the widow being consoled by our strongest competitor. Friends (to whom we owed nothing) deplored the manner of our taking off, but unanimously agreed the loss of our presence could be sustained with equanimity; others who had, in moments of unexplainable faith in our honesty, advanced small sums to tide us over temporary financial depressions, were now "flaxing 'round" in the endeavor to find something tangible upon which levy could be made. We roused ourself, and muttering the words of the immortal Webster, "we aint dead yet" were on the point of signaling for the "devil" to approach and remove it, when the sentences, "Positively non-explosive," "From The Modern Miller, Moline, Ill.," in small type, upon the bag, caught our attention. We breathed freer. The "assistant-editor" was quickly caught up, its jaws opened, and the string, confining the mouth of the bag, severed at one jab. What do you suppose this remedy for hard time was? Sand; simply sand; grit. How much sand have you, reader?

THE boatmen of the Erie Canal are trying to perfect some kind of an arrangement by which their profits can be increased without a demand for higher freight rates during the coming season. They are fully alive to the fact that any attempt on their part to force freights will be disastrous to their interest in view of the close competition of the railroads, and how to improve their condition under these circumstances has become a vital question. The general custom has been to pay the boatman certain rates per bushel, obliging him to pay all expenses incidental to loading, unloading, trimming of grain, insurance, towing and

port charges. The proposed change consists in making the shipper pay all these charges and to give to the boatman a certain net figure for which he carries the cargo from Buffalo to New York. This would give the boatman a better showing in his expenditures, because he could compute more intelligently everything pertaining to his boat and crew; on the other hand, the shipper's expenses would not be increased, but rather decreased, because heavy shippers could get special rates for elevating, towing, insurance, and numerous other items for which the boatman has to pay full charges. The saving in expenses due to such an arrangement will, according to the authority of Mr. Edward McConnell, a gentleman well known in Buffalo in connection with lake and canal commerce, amount to one-half cent per bushel, or on an average boat of 8,000 bushels capacity, to \$40, while it gives the same net profit to the boatman. Mr. Arthur D. Bissel, the President of the Erie Boatmen's Transportation Company, regards the plan as one that promises success, and as sure to give satisfaction ultimately to all concerned without being detrimental to anyone. It is confidently expected by men competent to utter an intelligent opinion in the matter, that the result of the new measure will be an increased demand for canal tonnage, and although the profits may be small, activity will increase and more business will be transacted by those engaged in the handling of grain, flour and merchandise between New York and Buffalo.

THE causes for the decline in the price of wheat have been a fruitful theme of discussion for some time past; overproduction and under-consumption; competition of India and Russia in the grain, and of Germany and Hungary in the flour markets; a too abundant harvest all over the world, etc., etc., have been discussed in numerous variations as the probable or possible causes; the remedies proposed have been as many-fold, perhaps more so, because more theoretical and less liable to be contradicted. The most recent of these latter we glean from an address of Mr. T. H. Dudley, before the New Jersey State Board of Agriculture, who claimed that the decline in wheat prices was solely due to Indian competition, because the quality and yield of Indian wheat was equal to the best American. This is undoubtedly new to our millers. Mr. Dudley's remedy is one of two, either reduce the price of labor in America to that of India, which he admits is ten cents per day, or else provide a home market for all our wheat. The former is too illusory to need any contradiction, the latter is about one century too premature; within that period the population of the United States will undoubtedly have increased to such numbers that all the foodstuffs will be consumed at home, but until that time arrives, our millers and wheat growers will look for foreign markets for the disposal of their surplus products, and as long as they not only hold their own in this struggle of competition, but rather lead very often, any attempt to preach the advantages of an exclusively "home" market will be a failure. When the time arrives that the grain fields of the United States can raise only sufficient food for the home market, the resources of India will be well developed and able to supply the deficiency caused by the withdrawal of American competition, neither can there be any doubt that some other country will by that time be ready for force competition with India. But this is entirely dealing in "futures;" for the present we are thankful that American flour and wheat, even at the present low prices, is abundantly able to take care of itself in the World's markets, and will continue to do so for some time to come in spite of an occasional croaking at home.

ESTABLISHED 1856. EUREKA GRAIN CLEANING MACHINERY | GENUINE DUFOUR BOLTING CLOTH

OVER 18,000 MACHINES IN USE.

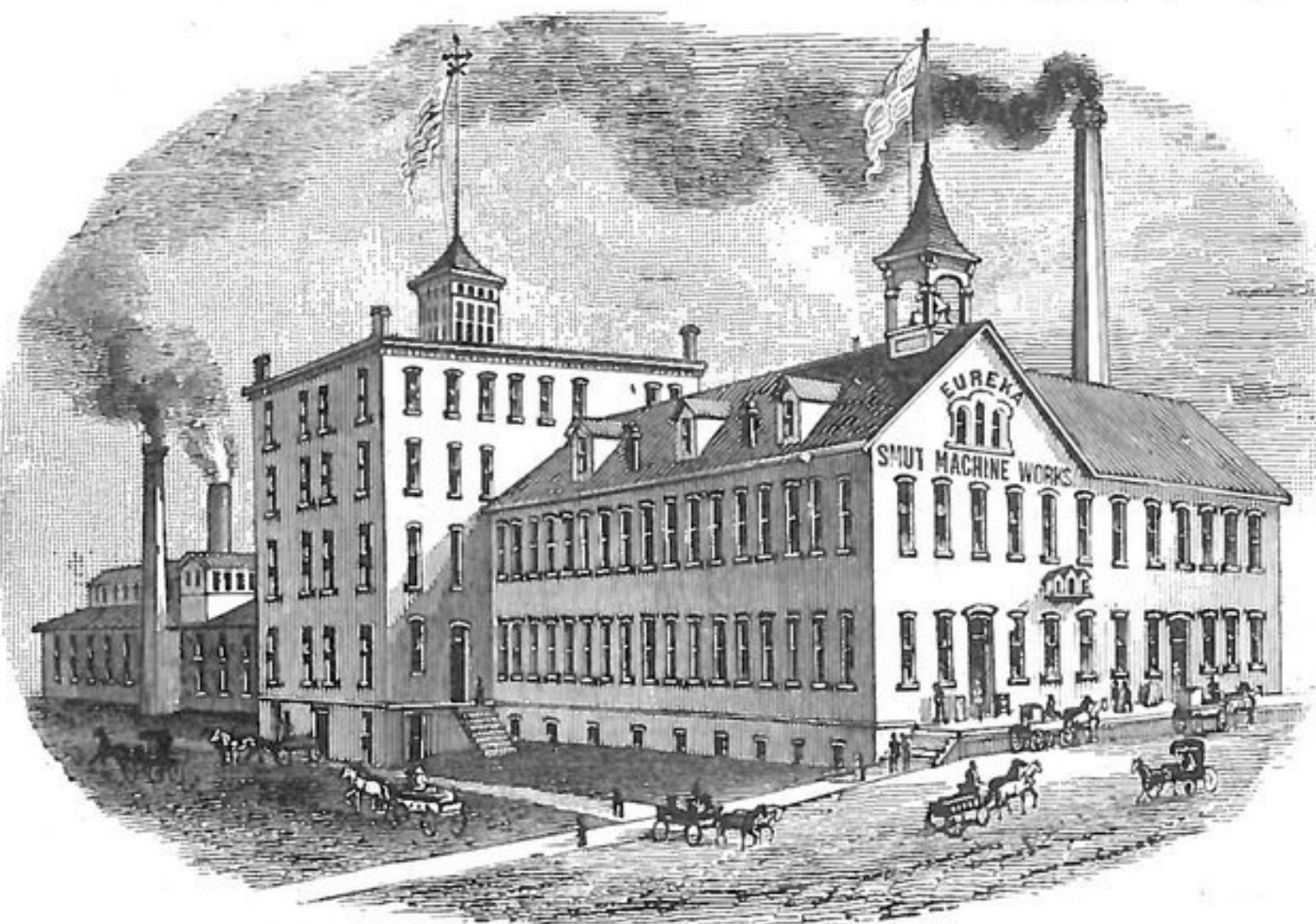
OUR LINE COMPRISES

The Eureka Separator,
The Eureka Smutter and Separator,
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The Eureka Magnetic Automatic Separator,
Silver Creek Flour Packer.

Our establishment is the oldest, the largest and most perfectly equipped of its class in the world, and our machinery is known and used in every country where wheat is made into flour.

HOWES & EWELL,
SILVER CREEK, N. Y.

European Warehouse and Office: 16 Mark Lane, London, E. C.
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We handle this justly celebrated cloth in large quantities, and can fill all orders upon receipt. For such as may prefer a cheaper grade, we offer our

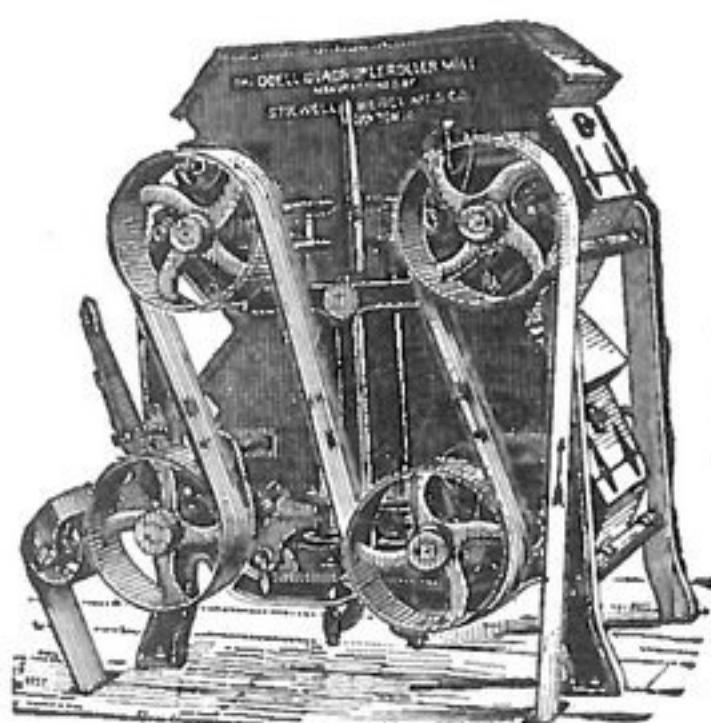
ANCHOR BRAND BOLTING CLOTH.

Guaranteeing it to be equal in every particular to any other cloth on the market, except the Dufour. We have handled it for years, have sold thousands of yards of it, and know it will fully sustain our representations.

Send For Samples of Cloth, Our Style of Making Up, and Prices.

HOWES & EWELL,
SILVER CREEK, N. Y.

FOR SMALL MILLS.



ODELL FOUR PAIR ROLLER MILL.

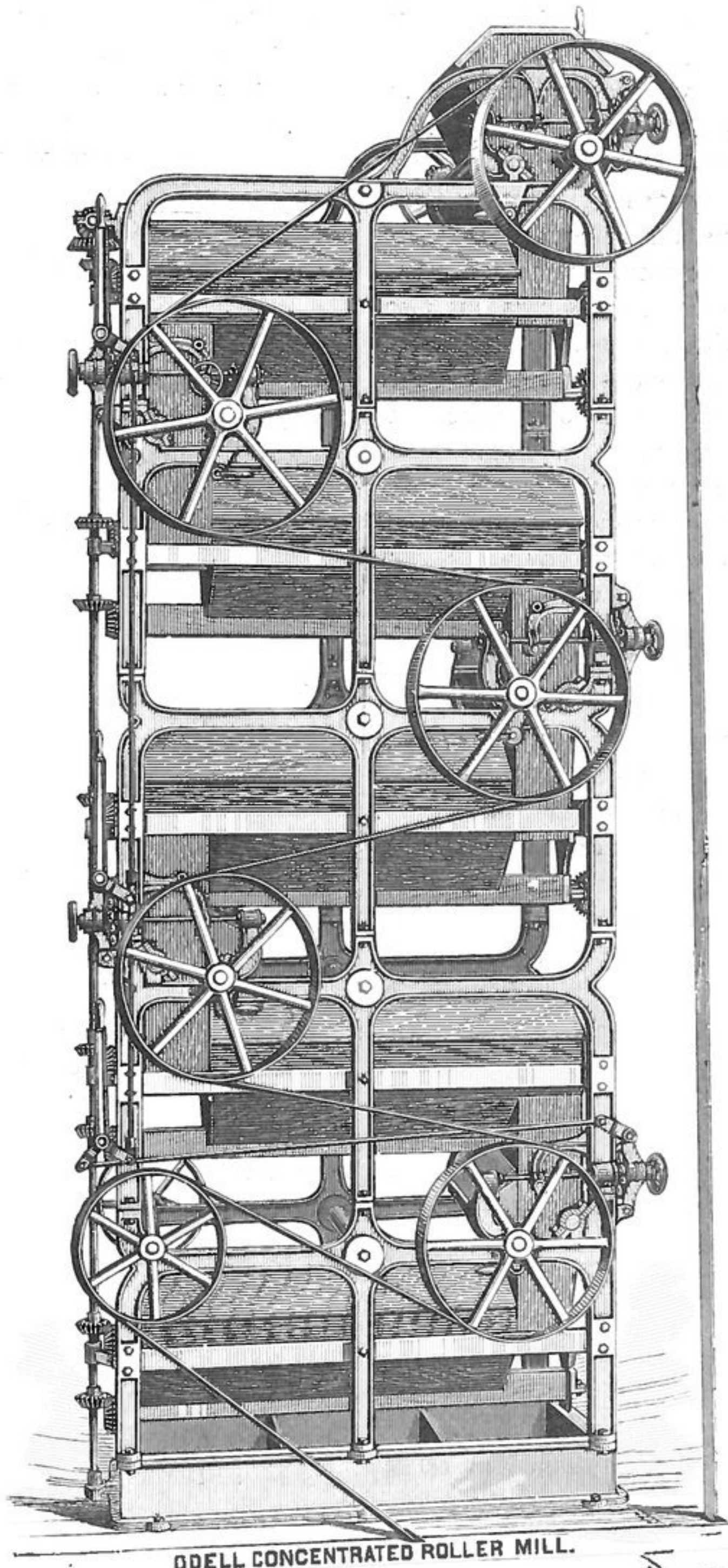
THEY ARE THE BEST.

WRITE FOR DESCRIPTION
AND PRICES.

STILWELL & BIERCE MFG. CO.

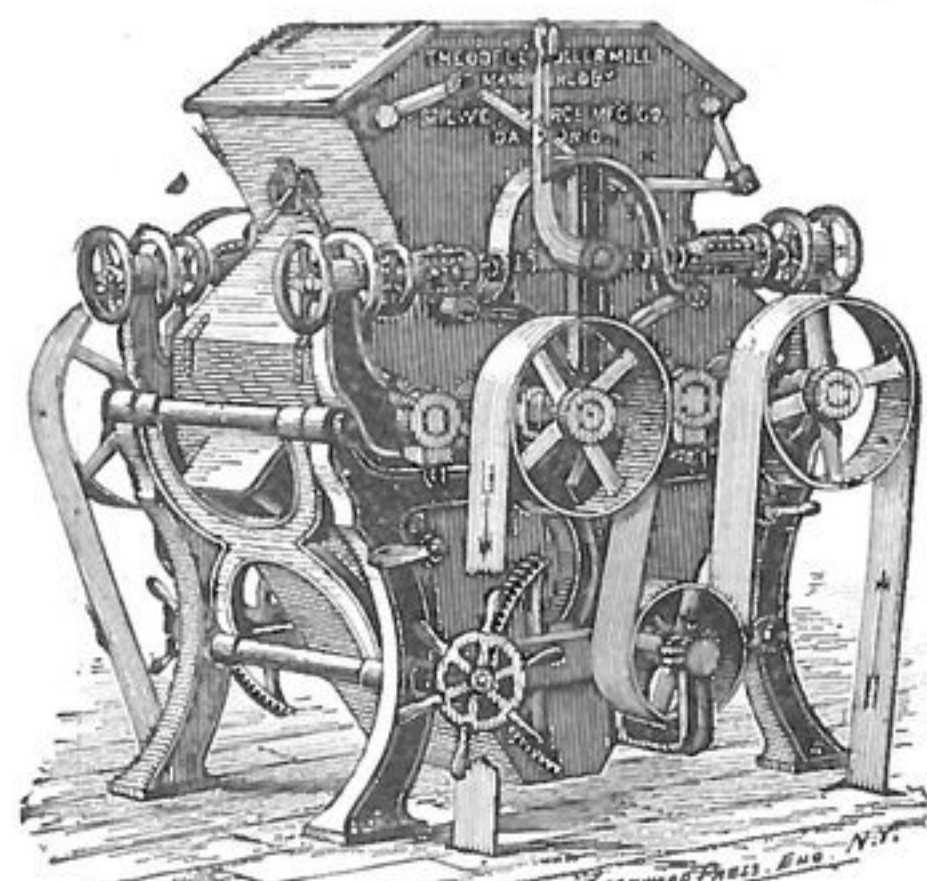
DAYTON, OHIO.

FOR CROWDED MILLS.



ODELL CONCENTRATED ROLLER MILL.

FOR ALL MILLS.



ODELL DOUBLE ROLLER MILL.

THEY ARE THE BEST

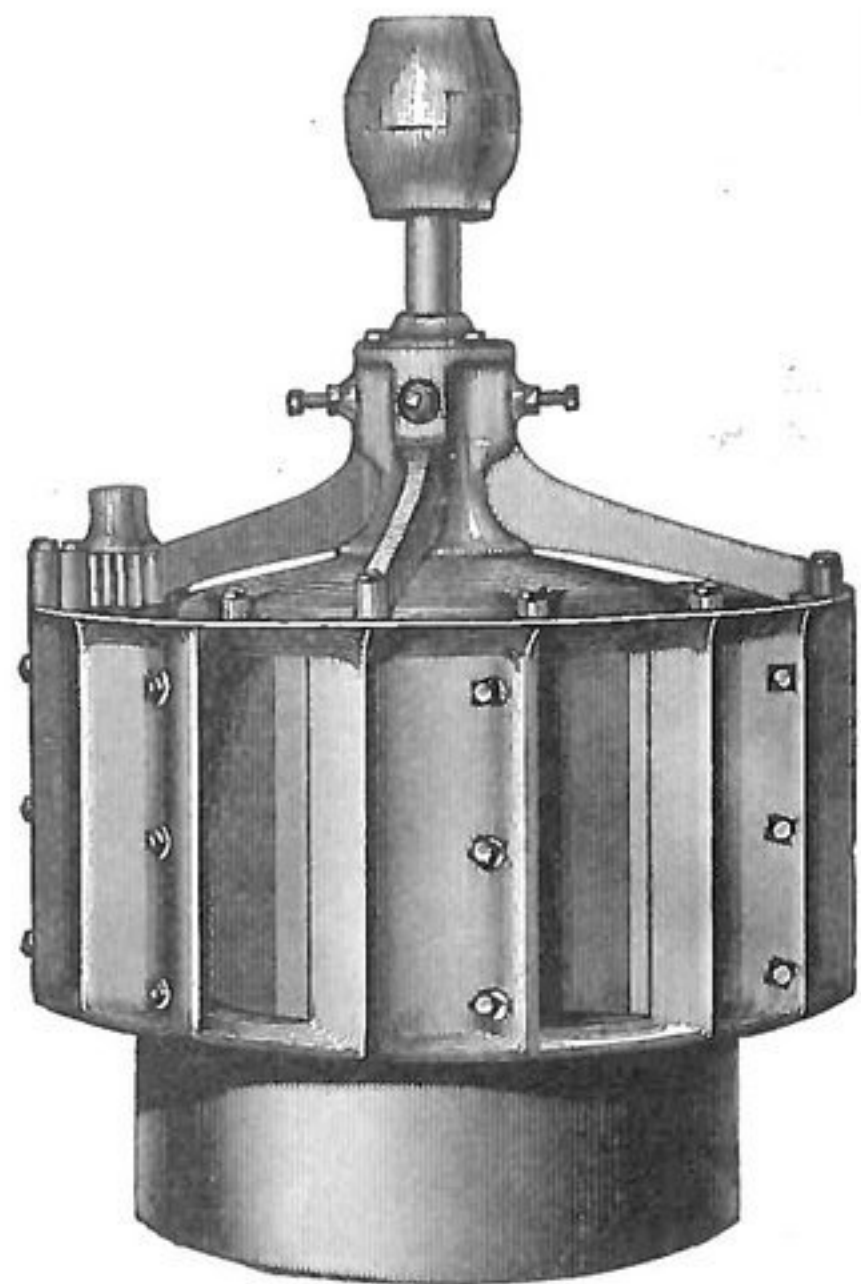
WRITE FOR DESCRIPTION
AND PRICES.

STILWELL & BIERCE MFG. CO.

DAYTON, OHIO.

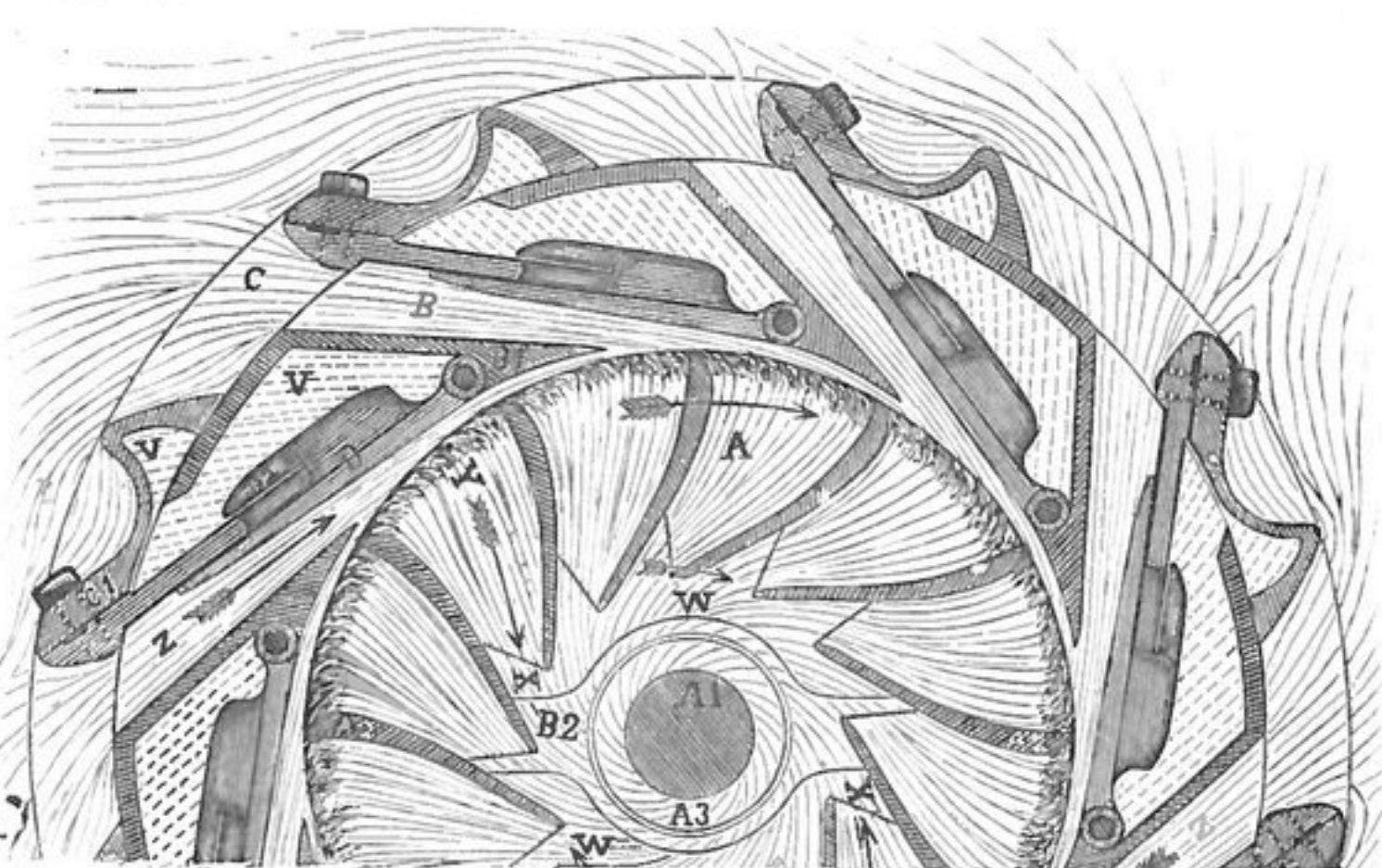
ODELL'S CELEBRATED ROLLER MILLS.

THE KEISER -TURBINE-



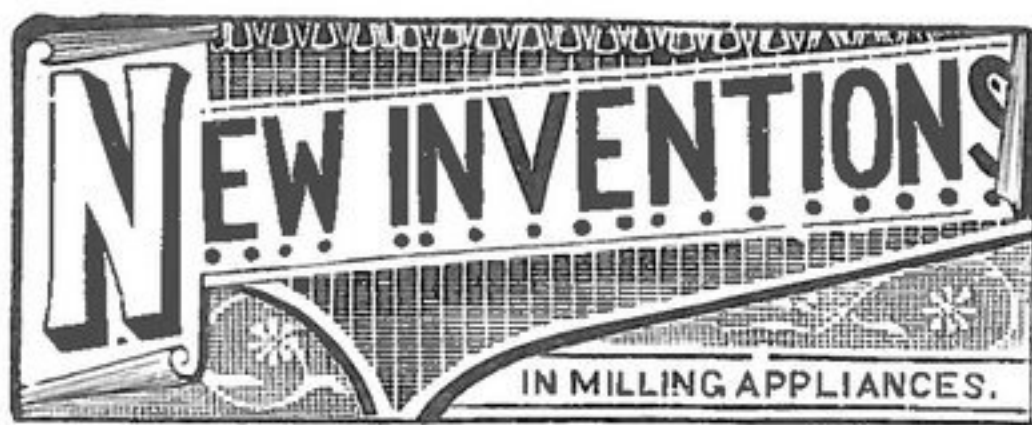
Has a combination of more good points than found in any other wheel. Yields the greatest power to be had from the water used, at all stages of gate and has a self-cleaning easy-working balanced gate that closes water tight.

WOLF & HAMAKER, CHAMBERSBURG, PA.



GATES ABOUT HALF OPEN—WHEEL AT WORK.

This figure shows our wheel working at half gate at which stage wheels are sometimes required to run during the dry seasons, &c., and shows how well the long taper chutes are maintained down to a small fraction of gate opening, and how the Keiser Turbine is adapted for part gate work. The water is kept well packed to its work as the chutes are still narrower at their inner ends than on the outer, and they always direct the water to the outer edges of the wheel buckets where it yields the most power.



PRESSURE-INDICATOR FOR ROLLER-MILLS.

Letters Patent No. 311,927, dated Feb. 10, 1885, to Eli Strong, of Kalamazoo, Michigan. The object of this invention is to provide roller-mills with simple means to indicate when the grinding-rolls are properly adjusted, also to indicate when the pressure-spring used in connection with the adjustable roll in such mills is properly tensioned. A construction illustrating the invention consists in an indicator-plate and a clamp operated by the movement of the adjustable roll's bearing-support in a manner to rigidly clamp the indicator-plate when the rolls are properly adjusted, and to set the plate free when the rolls are adversely adjusted. A pressure-indicator is used with each set of grinding-rolls, one at each end of the rolls, or otherwise, as desired. The stationary roll is located in a bearing-block having a vertical adjustment. The adjustable roll is located in a movable bearing-block and is thus horizontally adjustable, for the purpose of fixing and preserving a proper distance between the two rolls. The adjusting-rod is extended through an opening in the bearing-block beneath the end of the adjustable roll, and through an opening in the upward extension of said bearing-block. This rod is provided at one end with a hand-wheel and at the other end with an internally-threaded thimble. This thimble is screwed onto the threaded end of another rod and is adjustable thereon. When turning the hand-wheel in a direction to carry the adjustable roll and movable bearing-block nearer the stationary roll, the thimble screws move farther on to this latter rod, and when turning said wheel to carry the rolls farther apart, the thimble screws move farther off the said rod. A tension-spring is mounted on the adjusting-rod, one end resting against the bearing-block and the other end resting against tension-nuts, which nuts are adapted to turn on the adjusting-rod in fixing the tension of the spring. A collar is rigidly secured to the adjusting-rod and forms, in connection with the extension, a clamp, in which an indicator-plate is placed. Should the miller find by placing his hand on this indicator-plate that it was held rigidly by the clamp, he would know that the rolls were properly adjusted; but should he find the plate free to move, he would know that the rolls were running too close together. This would indicate to the miller that the tension on the pressure-spring was too great, or that the grain was not feeding sufficiently fast, and in either case that the rolls were too close together, hence not properly reducing the grain, or failing to grind at all.

FLOUR BOLT.

Letters Patent No. 311,873, dated February 10, 1885, to William F. Cochrane, of Indianapolis, Ind., and Geo. T. Smith, of Jackson, Mich. This invention is designed more specifically for use in connection with "centrifugal reels," as they are commonly termed, but need not be limited thereto. A series of rods are arranged upon a circle, the center of which is the beater shaft, and having their ends supported in the reel heads. A corresponding series of rods, having their ends supported in the reel heads are arranged upon a circle which is concentric with and of greater diameter than the circle of the first rods. The bolting cloth is arranged in zigzag lines and supported upon the inner and outer series of rods so as to form a stellular reel, whereby a greater increased bolting surface is produced with a reel of given

diameter and length. The bolt cloth may, however, be arranged to form chambers having two parallel sides with their open mouths toward the beaters. The material to be treated is fed through one of the reel heads into the center of the reel, which communicates directly with the chambers formed by the corrugations in the bolting surface, and is left unobstructed to allow the operation of the beaters when the bolt is used as a centrifugal reel. In all of these figures, however, the corrugations are circumferential, and the reel may be clothed with a single piece of cloth of rectangular form, and may be stretched by means of hoops at each end of the reel by the use of tenter hooks, or by such other appliances as may be found convenient. Another construction of reel, which is corrugated lengthwise, is shown by these inventors. A series of supporting rods are arranged in a circle, of which a beater shaft is the center. A series of supporting rods project outwardly and radially from these rods. Outer cloth rings are supported upon the outer ends of rods, and supporting cross bars are attached to each adjacent pair of outer cloth rings, preferably upon their inner faces, by means of rivets or their equivalents. Inner cloth rings are provided, each pair being connected with each other by means of supporting cross bars, and also attached to longitudinal bars by means of set screws. The cloth is supported upon the outer surfaces of the outer rings, and upon the inner surfaces of the inner rings, thus forming chambers each of which extends continuously around the reel, these chambers being arranged side by side. When preferred, the set screws may be dispensed with, thus avoiding the necessity for perforating the cloth to receive them, and also permitting that the inner rings may be contracted by means of a right and left hand screw bolt, which passes through outwardly projecting lips or lugs at the ends of the rings for the purpose of tightening the cloth; or the cross bars may be dispensed with. In each case the set screws should be employed, and by making the inner rings in segments the cloth can be tightened by means of these set screws. Another modification is also shown, in which the walls of the chambers are made converging instead of parallel, in which case the inner and outer rings are arranged alternately, the inner ring, by preference, consisting simply of a cord or strap, which can be taken up at pleasure to produce the desired tension upon the bolting cloth.

ROLLER-MILL.

Letters Patent No. 312,048, dated Feb. 10, 1885 to Jesse Warrington, Indianapolis, Ind., assignor to the Nordyke & Marmon Co., of same place. This invention relates to that class of machinery for the reduction of grain known as "roller mills," and is especially applicable to the style of mills illustrated in the Letters Patent of the United States issued to the Nordyke & Marmon Co., No. 274,508, dated March 27, 1883, and No. 277,525, dated May 15, 1883, being two of the patents referred to. It principally consists in an approved mechanism for operating the rolls, whereby mechanism necessary to other constructions, is dispensed with and a great degree of strength and rigidity secured, and in changes in the construction and arrangement of the roll-supporting parts incident thereto. This inventor makes the following claims, which we give in place of description, as this latter would be difficult of comprehension without illustration. 1. The combination, in a roller-mill, of the rolls, swinging arms carrying one roll of the pair, levers for operating said swinging arms, and a cam-rod on which said levers are mounted and whereby they are operated, said cam-rod being provided with an appropriate handle, substantially as set forth. 2. The combination, in a roller-

mill, of the rolls, swinging arms carrying one roll of a pair, levers for operating said swinging arms, a cam-rod on which said levers are mounted, and a handle having a segmental extension, whereby a second set of mechanism may be operated simultaneously, with the first, all substantially as shown and specified. 3. The combination, in a roller-mill, of the rolls, swinging arms carrying the same, levers for operating said swinging arms, and distance or adjusting screws for determining the position of said levers, substantially as set forth. 4. The combination of the grinding-rolls, the adjustable boxes attached to the frame-work and carrying the outer roll of the pair, the swinging arms carrying the inner roll of the pair, and means consisting of levers mounted on a cam-shaft, said cam-shaft, and hand-lever thereon, for operating said swinging arms to carry said inner roll into grinding relation with said outer roller or to part it therefrom, substantially as shown and specified. 5. The combination, in a roller-mill, of the roll carrying swinging arms mounted on pivots, and provided with adjusting-screws, the tempering-rods and the levers, substantially as set forth.

RECENT LEGAL DECISIONS.

[From Bradstreets.]

Where the payment of the purchase money of goods and the delivery of the same are expressly or impliedly agreed to be simultaneous and payment is omitted or refused by the purchaser upon getting possession of the goods, the vendor may reclaim them, according to the decision of the Supreme Court of Minnesota in the case of Fishbark et. al. vs. Dusen et. al.

In the case of Warner vs. Roher, decided by Judge Gresham in the United States Circuit Court, at Chicago, the figures and words "5,000 and—cents in lawful currency," were held good notwithstanding the clerical mistake of omitting the \$ mark. Judge Gresham said that to hold the bond void for such an omission would be too technical for justice.

In Kentucky, according to a recent decision of the Court of Appeals of that state, the wife's property may be subjected to the payment of money borrowed by the husband and applied in improving it, although the husband and wife have separated and the property is not more than sufficient to support her and her children. Lennen et. al. vs. Fitzpatrick et. al., decided January 22.

The salary due from a municipal corporation to an officer thereof cannot be reached by proceedings supplementary to execution by the creditors of the officer, according to the decision of the Supreme Court of Minnesota in the case of Roeller vs. Ames. The court declared that public policy forbids that any legal proceedings on the part of creditors should be allowed to interfere either directly or indirectly with the payment of the salary of a public officer directly to himself.

An association organized under statutory authority "for the mutual protection and relief of its members, and for the payment of stipulated sums of money to the families or heirs of deceased members," is not authorized to issue certificates of membership payable to the named beneficiary "or assigns," nor payable in case of death to others than the family or heirs of the insured members, according to the decision of the Ohio Supreme Court in the case of the State of Ohio ex rel. Attorney-General vs. The People's Mutual Benefit Association.

Where a partnership had dissolved, no notice of the dissolution being given, and a former customer sold goods to the partner remaining in business, and such partner signed his own and the name of the retiring partner to a note given in payment for such

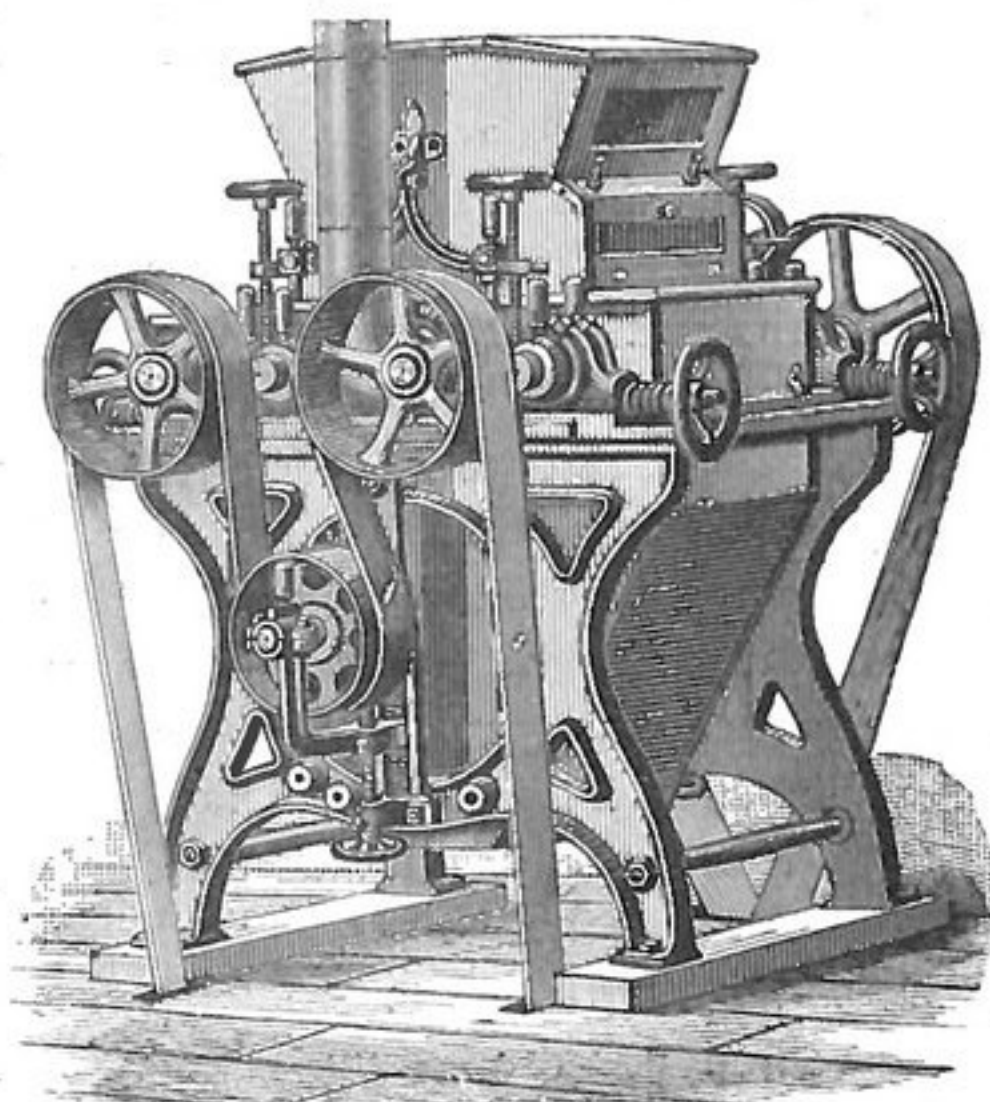
goods, the Supreme Court of Indiana held that the note bound both partners. Iddings vs. Pierson, et. al., decided January 31. The court said that in order to establish the liability as partners of persons who had dissolved partnership three things must appear, viz.: First, that the plaintiff at the time the contract was made under which his claim accrued knew that the defendants had been in partnership; second, that he was ignorant of their dissolution; third, that he made the contract supposing he was contracting with the defendants as partners, and in reliance on their joint liability.

The case of the Pittsburgh Insurance Company vs. Frazer, decided by the Supreme Court of Pennsylvania, involved a question as to the liability of the insurance company for a loss by fire. The contract of insurance was against fire on dry goods, groceries and merchandise usually kept in a country store, and contained a provision restricting the amount of gunpowder to be kept in the insured premises. Upon the trial in the court below evidence was admitted to show that gunpowder in the quantity kept by the appellee, although greater than the amount allowed by the policy, was usually a part of the contents of a country store. The Supreme Court, on appeal, held that the court below erred in admitting this evidence, and that the clause restricting the amount of gunpowder should be strictly complied with.

Where property to which the United States asserts no title is taken by its officers or agents pursuant to an act of Congress as private property for the public use, the government is under an implied obligation to make just compensation to the owner, according to the decision of the Supreme Court of the United States in the case of The United States vs. The Great Falls Manufacturing Company. The Supreme Court took the view that such an implication being consistent with the constitutional duty of the government as well as with common justice, the claim of the owner of the property for compensation was one arising out of implied contract, within the meaning of the statute defining the jurisdiction of the Court of Claims, although there might have been no formal proceedings for the condemnation of the property to public use; and that the owner might waive any objection he might be entitled to make, based upon the want of such formal proceedings and, electing to regard the action of the government as a taking under its sovereign right of eminent domain, might demand just compensation for the property.

The case of Zier vs. Hoflin, decided by the Supreme Court of Minnesota on the 3d ult., was an action against the defendant for the insertion in a newspaper of the following advertisement: "Wanted E. B. Z., M. D., to pay a drug bill." Some third person, it appears, cut out the advertisement, pasted it on a postal card, and sent it to a young lady to whom the plaintiff was affianced. The court, in holding that a verdict for the plaintiff should be sustained, said regarding the words in question: The only facts suggested by them standing alone—to wit, that the plaintiff owes a drug bill and that the creditor wishes him to pay—do not necessarily impute anything wrong to plaintiff. But words which may be innocent of themselves may be rendered libelous by the place and circumstances of their publication, for such place and circumstances may impress on them a meaning and suggestion which standing alone they do not have. Thus, though the words here do not of themselves impute wrong, they might be published in such a place or under such circumstances as to make them capable of naturally conveying the impression that plaintiff had been guilty of dishonest practices, either in contracting the debt or in withholding payment of it.

Rickerson Patent Improved Roller Mill



ORIGINAL 6-INCH ROLLER MILL.

*Requires Less Power to Drive,
Has Greater Capacity,
Better Granulation,
More Middlings*

THAN ANY OTHER ROLLER MILL.

Patent Exhaust Attachment for
taking away Generated Heat.

Positive movement of the rolls. We will furnish details upon application. Send for our Circulars before purchasing any Roller Mill.

RICKERSON ROLLER MILL CO.,

GRAND RAPIDS, MICHIGAN.



CALIFORNIA!

DEAL'S CALIFORNIA MAGNETIC
BRUSH SMUTTER
AND

SEPARATOR COMBINED

Warranted The Very Best In America.

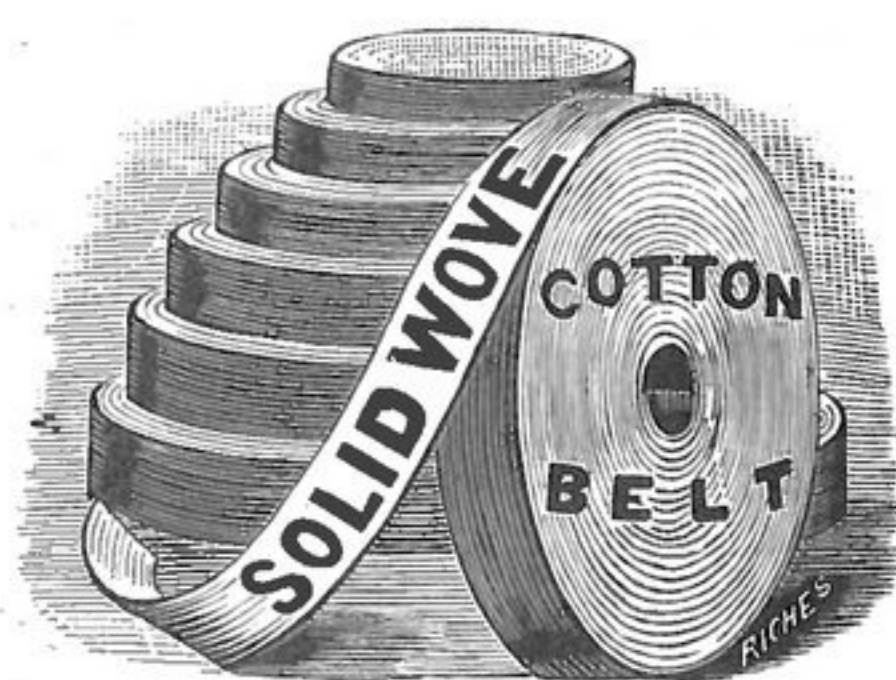
The purchaser being the judge after 60 or 90 days' trial. We manufacture a complete line of Grain Cleaning Machinery, and guarantee every machine to give entire satisfaction or no pay. Send for circulars, it will pay you.

M. DEAL & CO.,

Sole Owners and Manufacturers,

BUCYRUS, OHIO U. S. A.

Exhibit at World's New Orleans Main Building, Columns G-G, Nos. 47 and 48. Space 15x25 feet.



MILL SUPPLIES { *Everything Used in
a Mill of Every Kind
Always on Hand.*

Leather Cotton Rubber } **BELTING, BOLTING CLOTH**

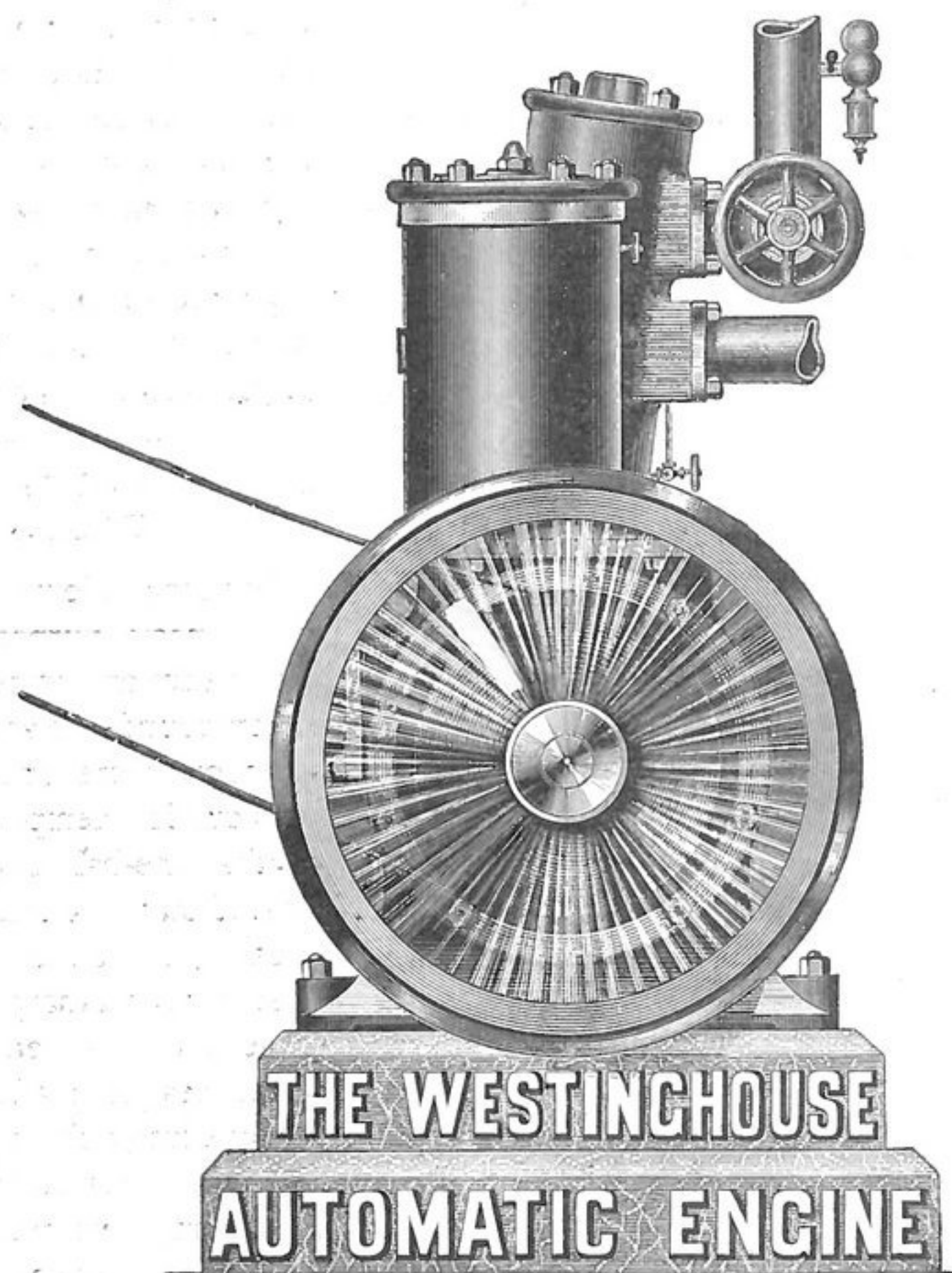
ELEVATOR BUCKETS, BOLTS, MILL IRONS, &C.

Prices Close and Quality the Best.

The Case Mfg. Co., Columbus, Ohio.

1,000 ENGINES NOW IN USE!

30,000 Horse Power now Running.



Sales 2,000 Horse Power Per Month.

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The Westinghouse Machine Company

PITTSBURGH PA.

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PARKE & LACY, San Francisco and Portland, Oregon.
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THE GEO. T. SMITH CO.'S CENTRIFUGAL REEL ABROAD.

EXTRACT FROM A LETTER OF THEIR AGENT AT HAMBURG, GERMANY.

"... Have in the latest days been twice in the mill of Mr. Gabbert here (which is built by... with rollers and disintegrators), and with the intention to know the opinion of Mr. Gabbert about your reel, who, as he told me, gave the best testimonial, and said to... that if he had not yet... reels, no other than yours would be put in his mill, and that he is now sifting the whole flour produced by his mill, through the No. 0 reel, about 2,000 pounds per hour... shook their heads and replied that it seems advised to wait for the result after some longer time, but Mr. Gabbert as he has now the No. 0 reel for two months answered that they might be convinced of your reel to be in fact a large new success. Not less than three reels of... (price \$300 each, 550 mm. diameter), would be required to do the work of your No. 0 reel for flour producing."

HAMBURG, GERMANY, Jan. 24, 1885.



WHAT MACHINERY HAS DONE FOR THE WORLD.

IN every civilized land at this time, says the "New York Tribune," there is a complaint that times are hard. Everywhere the cause is said by many to be overproduction. But how can it be a cure to mankind to have the objects of human desire supplied in greater abundance and more cheaply? If there is overproduction all over the world, as some reason, that means merely that the supply of things useful for human happiness is greater all over the world than the present demand. In reply to this natural suggestion, we are told that a vast amount of labor has been displaced by a more general use of machinery, that a general disturbance of the labor market has been caused, and that a great number of persons have been thrown out of employment. The very change which some call a blessing brings ruin to many producers, and forces many employers to cut down wages, and curtails the ability of workers to consume products of other industries. Thus we are taught to believe that the progress of science and invention is a progoess toward human misery.

Is it true, then, that machinery has displaced human labor? A century ago relatively fewer persons were employed in any other avocation than tilling the soil than are now so employed. Machinery has created a new world; it has cheapened almost everything that man desires. It has brought within the reach of the humblest not only a vast number of products wholly unknown a century ago, but luxuries and comforts which a century ago even the richest could not afford to commonly enjoy. Meanwhile has it displaced labor? On the contrary it has made work for a vast population outside of the ruder arts which were formerly pursued. Has it displaced the shoemaker? No; more persons than ever before are making shoes, because more shoes are made and used, cheapness permitting multitudes to wear them who formerly could not. So there are more sewing girls, in spite of sewing machines. There are more farm workers in spite of all the agricultural machines. There are more cotton and woolen and silk weavers in spite of those numerous improvements which seem to do with steam and iron the work of human hands better than human hands could do it. And to crown all, the wages in all branches of labor have risen. In every occupation, from the rudest to the most skilled, from farm labor to the most delicate manipulation of tools and machinery, labor is better paid in money than it was before the age of invention. And, moreover, each dollar of the money received will buy far more food than a dollar would have bought a century ago, far more clothing, and more things for the supply of all human wants. Thus it is simply blundering to say that machinery does, or can, in the long run, supplant or displace human labor. On the contrary, the use of machinery is limited only by the human labor that can be brought to employ it.

Every labor saving invention enables one human want to be more cheaply supplied, so that a part of the human energy expended in satisfying it can be turned to the supply of other wants. The overproduction theory, except as limited to a very narrow field, and within a narrow compass of time, is altogether without foundation. The human race, as a whole, does not suffer because its powers of production are increased, or because its wants can be more easily or cheaply supplied, or because things needful for human comfort and use are more abundantly

produced. Temporarily, and within some particular market, production may at times so far outrun the demand that a disturbance results. But that is not the phenomenon that we are now witnessing. The disturbance of industry in these days affect many countries, though in different measure; and while it would have affected this country but little, if at all, but for the disturbance of the tariff question, and has affected us only within the past year or two, it has continued in Great Britain and other countries with increasing force for nearly ten years. The philosophers who preach of overproduction have not yet detected the cause of the evil.

CEMENTS FOR SPECIAL PURPOSES.

The "Building News" gives a list of cements for special purposes, the following as best for steam and water joints: ground litharge, ten pounds; plaster-of-Paris, four pounds; yellow ochre, one-half pound; red lead, two pounds; hemp, cut into one-half inch lengths, one-half ounce, mixed with boiled linseed oil to the consistency of putty. White lead, ten parts; black oxide of manganese, three; litharge, one; mix with boiled linseed oil. A cement for joints to resist great heat is made thus: asbestos powder, made into a thick paste, with liquid silicate of soda. For coating acid troughs, a mixture of one part pitch and one part plaster-of-Paris is melted, and is a good cement for coating. Correspondents frequently ask for a good cement for fixing iron bars into stone in lieu of lead, and nothing better is known than a compound of equal parts of sulphur and pitch. A good cement for stoves and ranges is made of fire clay with a solution of silicate of soda. A glue to resist damp can be prepared with boiled linseed oil and ordinary glue; or by melting one pound of glue in two quarts of skimmed milk; shellac, four ounces; borax, one ounce, boiled in a little water, and concentrated by heat to a paste. A cement to resist white heat may be usefully mentioned here; pulverized clay, four parts; plumbago, two; iron-filings, free from oxide, two; peroxide of manganese, one; borax, one-half, mix with water to thick paste, use immediately, and heat gradually to a nearly white heat. Many of the cements used which are exposed to great heat fail from the expansion of one or more ingredients in them, and unequal stress is produced; or the two substances united have unequal expansibility or contractility; the chemical or galvanic action is important. The whole subject of cements has not received the attention it deserves from practical men. Only Portland cement has received anything like scientific notice, and a few experiments upon water-proof, heat-resisting and other cements would show which cements are the best to use under certain circumstances.

* * A method of determining the thickness of the iron plates in boilers or tanks, without cutting the plate, is described in *Le Genie Civil*. Although the process is rather rude as yet, the theory on which it rests is a most ingenious one, and the principal is capable of being applied to a very extended range of similar tests. M. Lebasteur, the engineer of the great French railway company Paris-Lyons-Mediterranean, deserves to have his name remembered as the inventor of the process, which in his hands has given results of singular accuracy. To test the thickness of a particular boiler-plate, or portion of a plate, M. Lebasteur spreads on the plate which he wishes to examine a spot of tallow, about one one-hundredth of an inch thick, and makes a similar application to a bit of sheet iron of known thickness. He then applies to each, during a certain time, a small object, heated to a point as nearly constant as possible; using generally for the purpose one of the little cauterizing

instruments made for surgical purposes. On the application of the hot instrument the tallow melts, forming a circle of bare metal around the heated point, bounded, after the place has cooled, by a little ring of tallow, raised above the surrounding portions. If the cautery has been applied for the same length of time to each plate, the diameters of the little melted circles upon the two plates will be to each other inversely as the thickness of the plates. The explanation of this of course is that in the thicker plate the heat of the cauterizing tool is conducted away so rapidly by the larger mass of metal that a small portion only is made not enough to melt the tallow on it; while in the thin plate the heat is less freely diffused, and the effect extends laterally to a greater distance. Some variation in the results would probably come from the different chemical composition of plates tested, but it is worth noting that the direction of the fibres in the plates seems to have no influence whatever on the melting of the tallow.

* * There is a strip of land about seventeen miles wide between the Gulf of St. Lawrence and the Bay of Fundy which is a great hindrance to navigation, as it causes a voyage of over 600 miles around a very dangerous coast to get from the Gulf to St. Johns, Portland or Boston. Long ago it was proposed to make a ship canal through this seventeen miles, but the difference of seventeen feet in the tides of the two waters showed that the canal would soon fill up from the vast quantity of alluvial matter in the Bay of Fundy, so, after several surveys, extending through many years, had been made, the enterprise was given up. And it is now proposed to build a ship railroad across, and for that purpose the Canadian Government granted a subsidy in 1882 of \$30,000 annually for twenty-five years, to the enterprise when completed. The Chignecto railway, as it is to be called, has been finally decided upon. The road will be laid over, practically, a level country, in four tracks, over which it is proposed to transport ships of 1,000 tons only, and that of those peculiarly shaped vessels which are unseaworthy in a stormy voyage around Cape Sable. The amount of capital proposed, is about three and a quarter millions of dollars. No matter what the cost, within reason, as long as so great benefit to commerce and humanity is accomplished, it will receive the approbation of all sensible people. The system proposed is practically the same as that of Capt. J. B. Eads' for the Isthmus, the hydraulic lifting of the ships on a cradle onto the railroad, and thence by large locomotives. The building of the line will commence with the coming of spring.

* * "Air," says a mining engineer, "is like a rope; you can pull it better than you can push it." All mechanical appliances for pushing air into a room or house are disappointing. What we need to do is to pull out the vitiated air already in the room; the fresh supply will take care of itself if means for its admission are provided. It has been usual to withdraw the air through openings near the ceiling—that is, to carry off the warmer and therefore lighter portions, leaving the colder strata at the bottom of the room, with the gradual accumulation of cooled carbonic acid undisturbed. Much the better plan would be to draw this lower air out from a point near the floor, allowing the upper and warmer portions to descend and take its place. An open fire, with a large chimney throat, is the best ventilator for any room; the one-half or two-thirds of the heat carried up the chimney is the price paid for immunity from disease; and large though this seems, from its daily draft on the woodpile or coalbin, it is trifling when compared with doctors' bills, and with the loss of strength and efficiency that invariably

result from living in unventilated apartments."

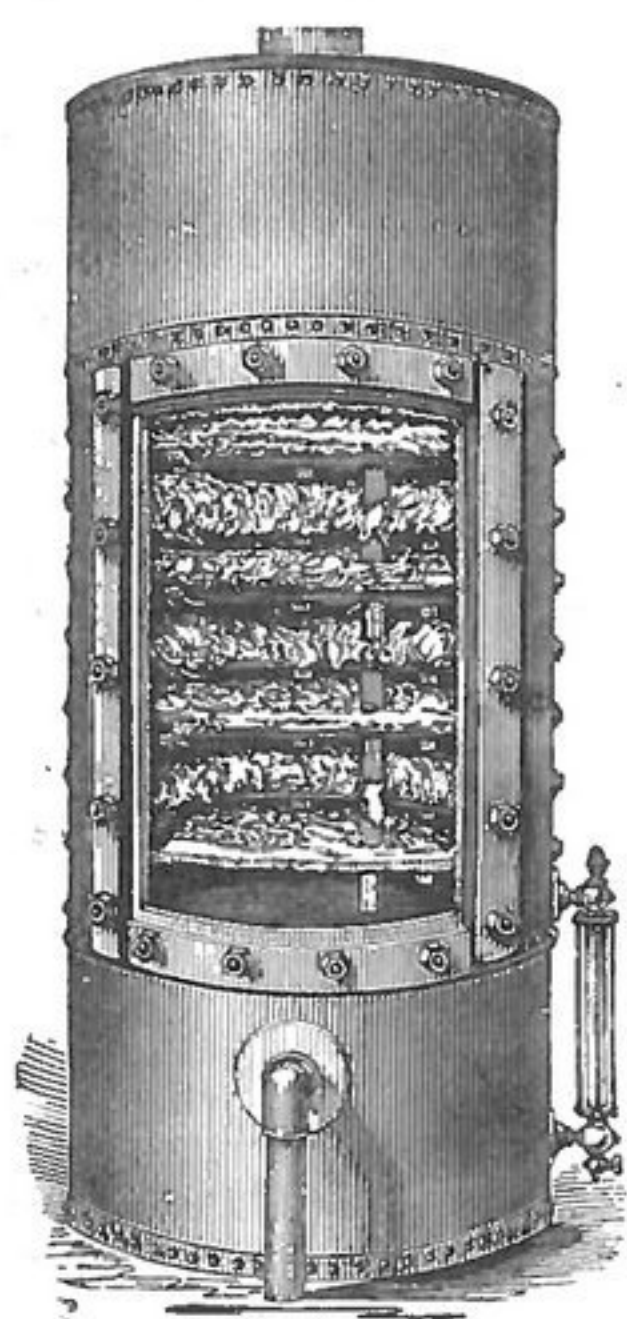
* * Says a writer to the "Boston Journal of Commerce:" I find a great deal of trouble arises when a water wheel is connected on to an engine to make them work well together. To do this, make a difference in the speed of the regulator, have the water wheel the lowest, then the engine will throw the load on the water wheel till the gates are wide open, or whenever the regulator stops, and then the engineer will govern the speed with its own governor. When they are far apart they will not work together so well, but they can be made to work without breaking down every week. This plan is for the matter of economy, as it keeps the wheel at work to the best advantage and lets the engine have what is left. The regulator should be just enough below the governor to take hold where the speed is too great. The speed may be not quite as regular, but it will regulate itself, the wheel continually taking all it can carry.

* * There are few people who pay any attention as to how they put on a cross belt, says the "American Wood Worker." The right way to do it is to put the belt on in such a manner that the driving pulley will have a tendency to rough up the splices, then when the splices come to the crossing they will smooth each other down instead of catching under the corners of each and tearing open a splice. A quarter-twist belt should never be used where it can be avoided; but when it is used, it should be as narrow as practicable, and the pulleys should be large. Increasing the width of a quarter-twist does not increase its power in the same ratio as in a straight or cross belt. There is not more than one per cent. advantage in using an oiled belt with the grain side next to the pulley, which will hardly compensate for the ugly look which a belt presents when put on in that manner.

* * The standard of a perfectly safe lubricating oil from spontaneous combustion is given by an Exchange as follows: A mineral or paraffine oil so called, bearing fire test of 300 deg. or more; an evaporation of five per cent. or less in twelve hours, and a constant heat of 140 deg.; the greatest degree of fluidity consistent with keeping the oil upon the bearing. High-grade neats-foot oil is sometimes mixed with mineral oil, and so long as the oils remain thoroughly mixed, as much as 25 per cent. of neats-foot oil may be safely used. But five recent cases of spontaneous combustion have called attention to a tendency in these oils to separate, so that the neats-foot oil has apparently been applied nearly free from mineral oil, and in such cases fire has ensued. Great care should therefore be taken that mixed oils are kept in safe condition by frequent agitation or stirring.

* * The Indian industrial school at Genoa, Neb., now numbers 107 pupils. Of these twenty-four are Winnebagos, eight Poncas, one Omaha, and the remainder Sioux, from the Yankton, Pine Ridge and Rosebud agencies. Seven boys are taught carpenter work, and a regular detail of boys work the farm of 320 acres. The girls are taught sewing and laundry work, besides keeping the dining-room, kitchen, dormitories and halls in order. The product of the farm last year was 100 bushels of oats and 5000 bushels of corn.

* * Layers of paper or paper pulp, formed into a corrugated sheet, with a lining of asbestos to bear on the hot surface, is a new form of boiler lagging, and is well spoken of. The intention is to make air spaces between the boiler and the lagging, and yet have a strong covering which will prevent the radiation of heat.



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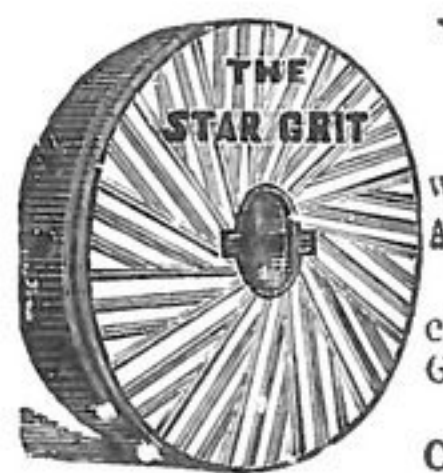
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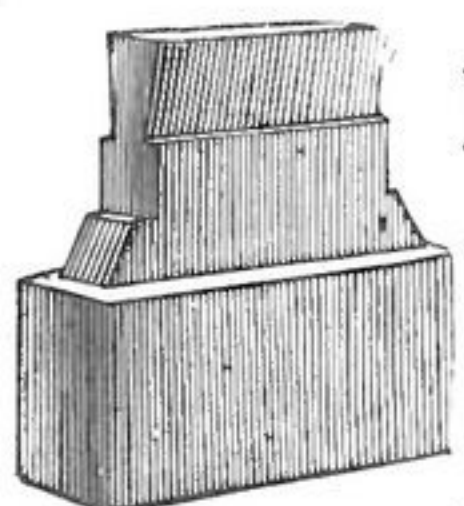
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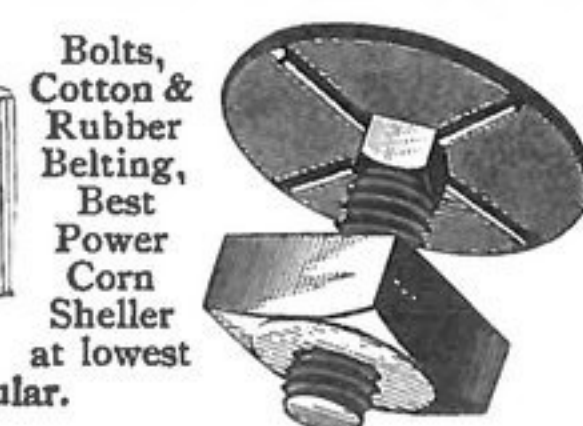
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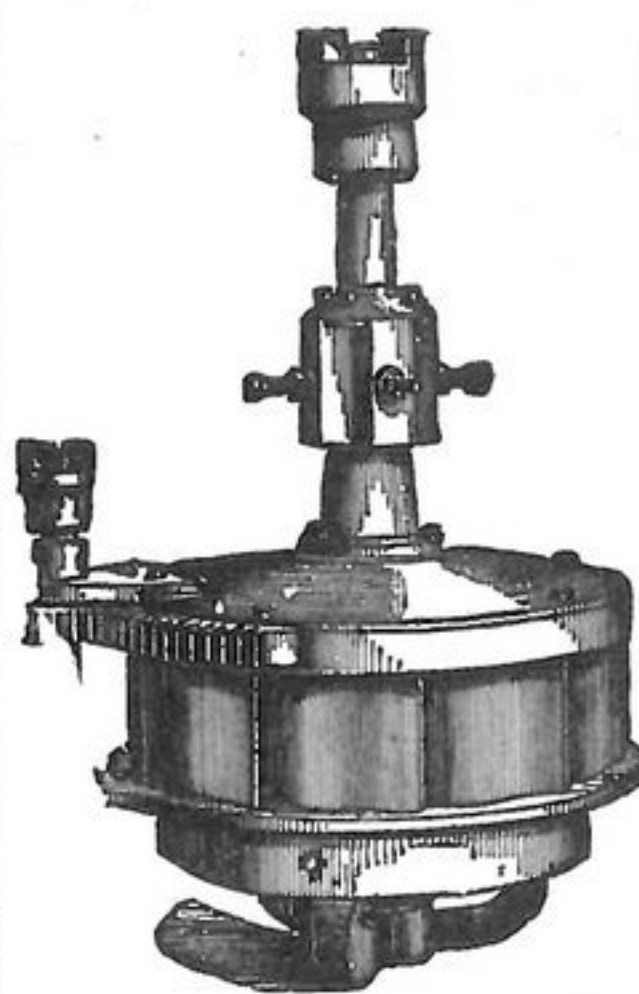


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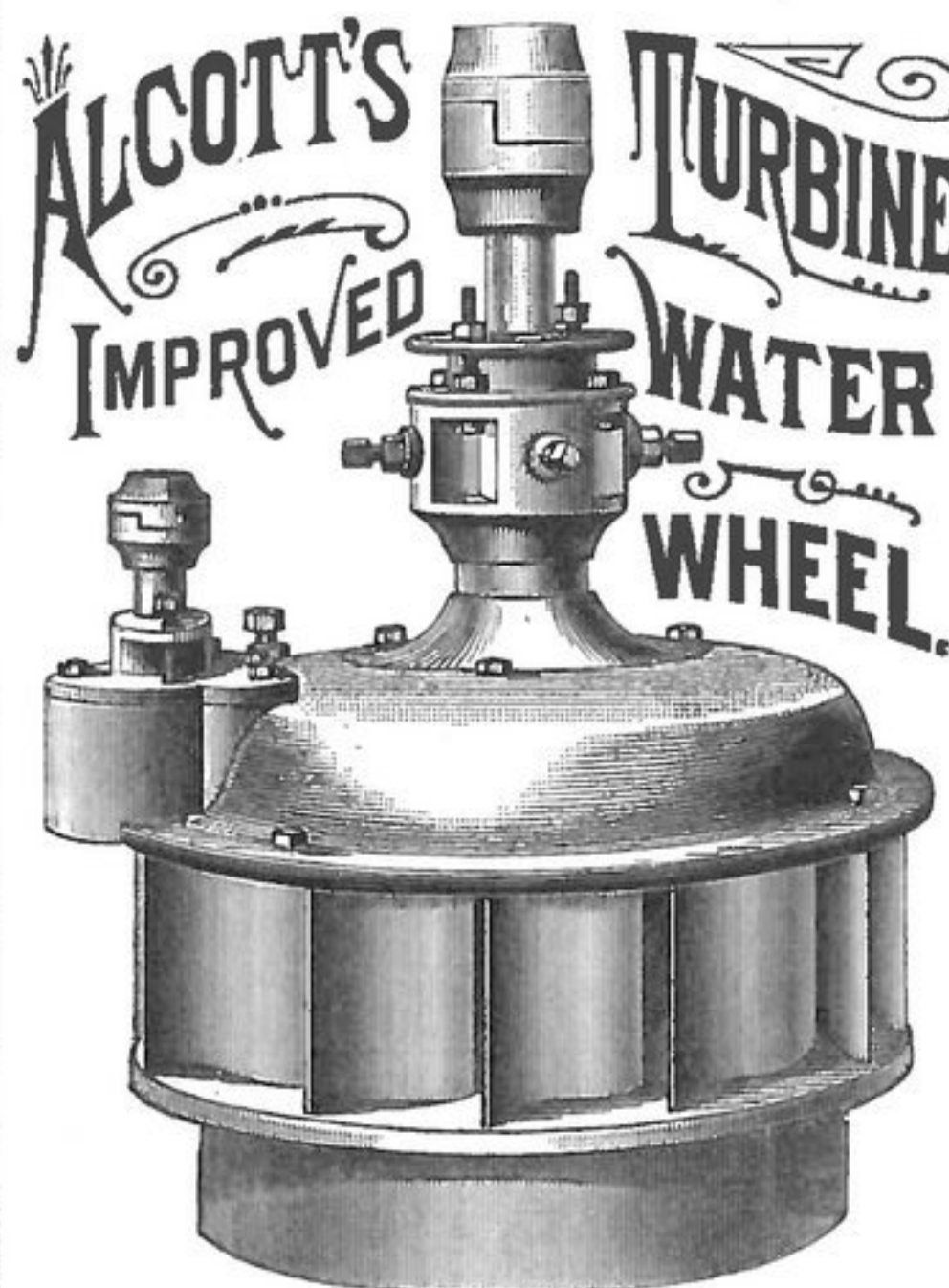
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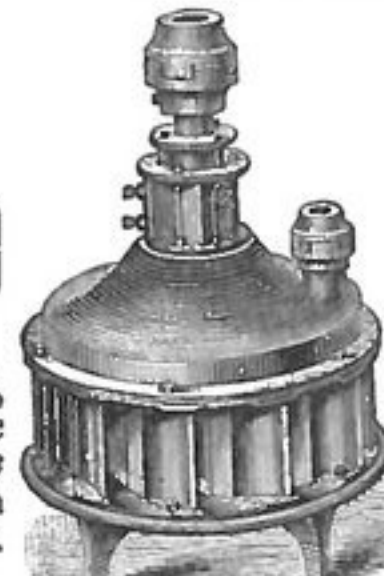


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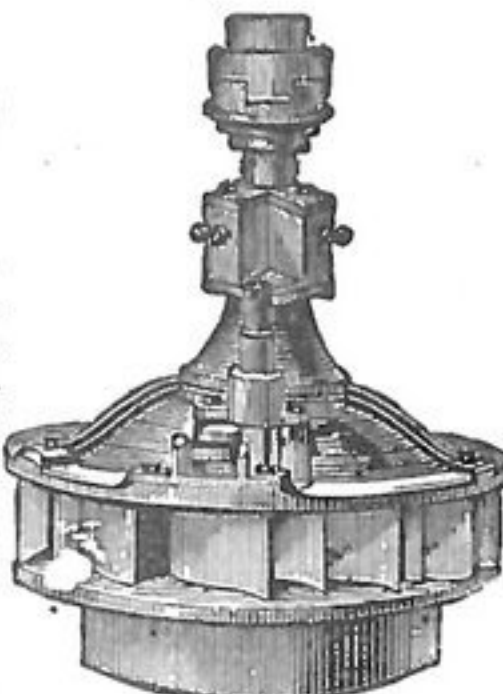
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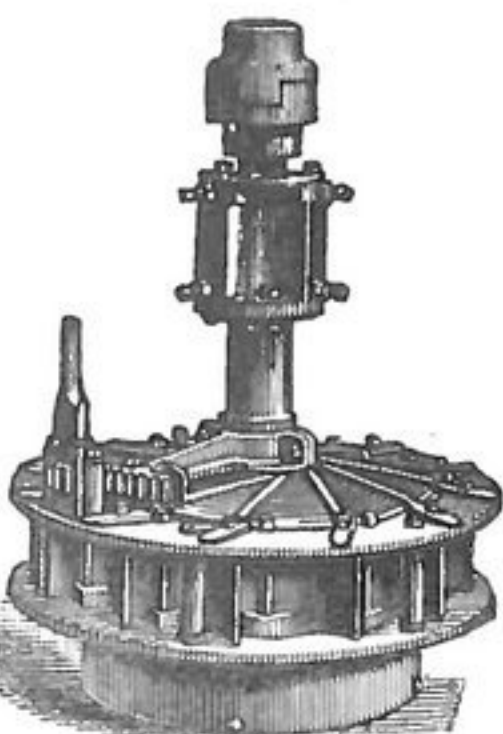
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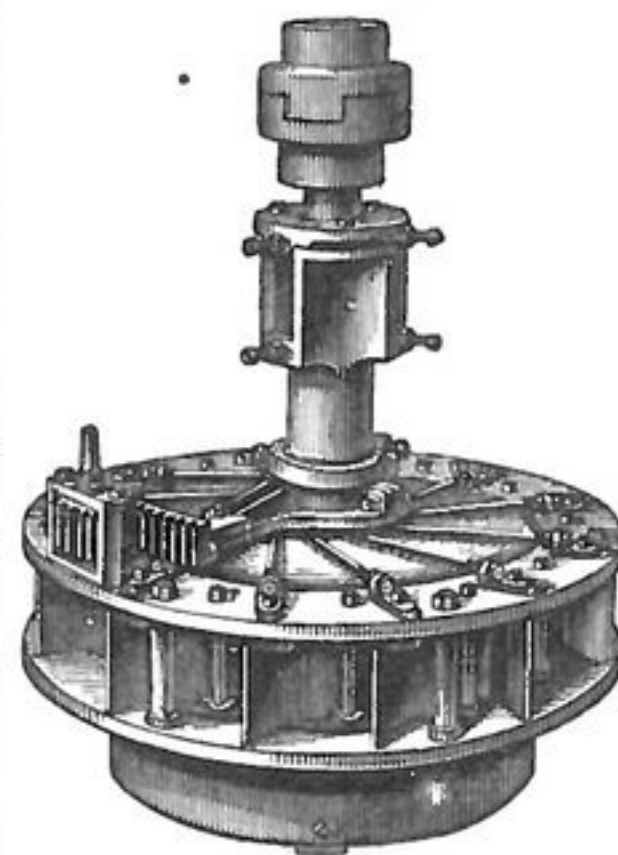
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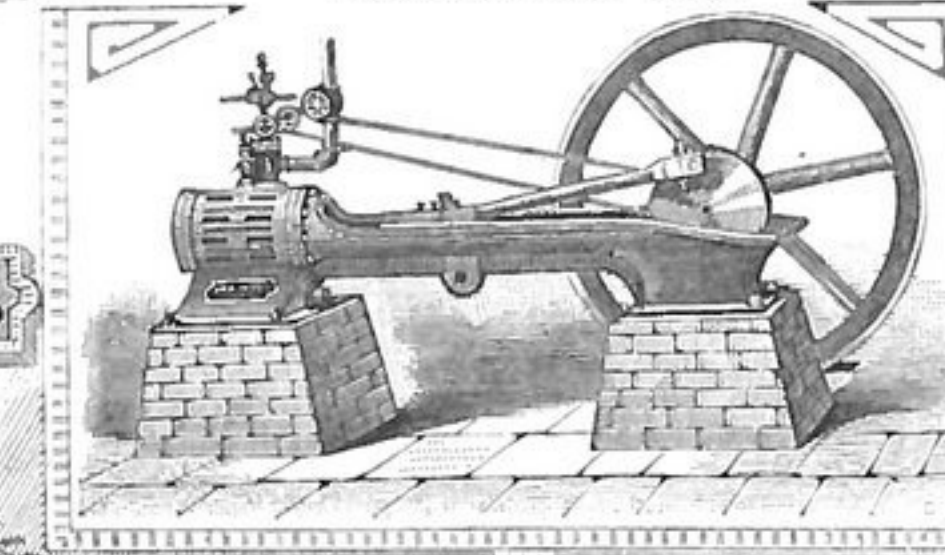
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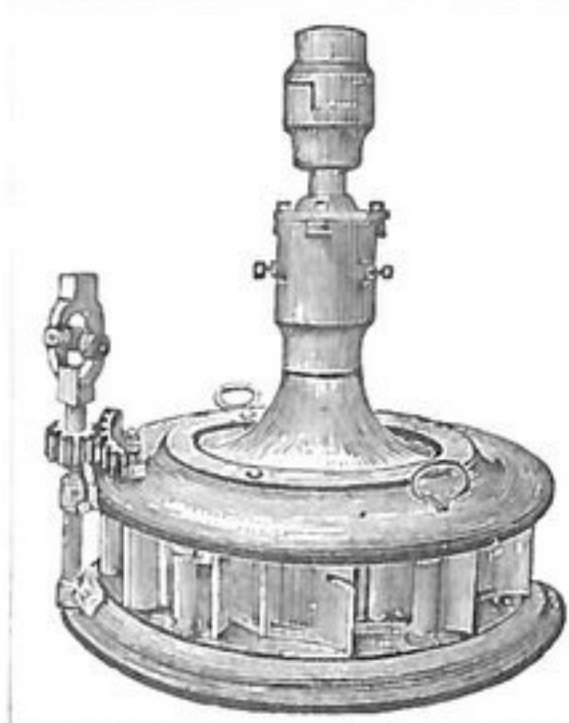
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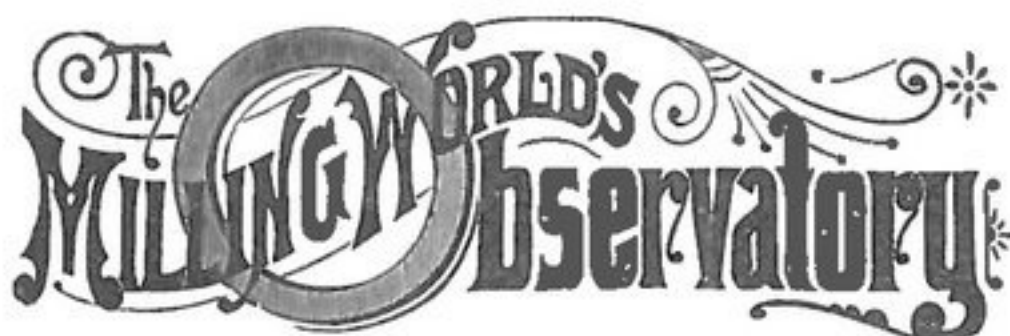
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Notes from the Trade.

R. C. Libby has purchased the Brownston, Minn., flouring mill.

The Hudson Bay Company's mill at Winnipeg, has been started with the new roller process machinery.

Three boilers in the starch works of the Firmench Manufacturing Company, Peoria, Ill., exploded February 8th.

It is stated that the new 1,200,000 bushel elevator at Fort William, just completed, has begun to settle from the foundations, and is unsafe.

Reports from nearly all the Northwestern and Middle states show a decreased acreage of winter wheat, with prospects of a good crop very discouraging.

The cotton, gin and grist mill owned by Martin Brothers, at Mabelville, Ark., ten miles south of Little Rock, were destroyed by fire Feb. 6. Loss \$3,000; insured for one-third. Origin of the fire is unknown.

New York annually raises five bushels of corn, six and a half bushels of potatoes, over two bushels of wheat, half a bushel of rye, seven and a half bushels of oats and a ton of hay for each of her inhabitants.

The citizens of Slayton, Murray county, Minn., offer a bonus of \$1,000 in cash to any party or parties who build a grist mill at that place to cost not less than \$6,000, and the same to be in running order by Oct. 15, 1885.

Nairn's oatmeal mill at Winnipeg, is now running full time and turning out a first-class article. Mr. Nairn is confident of being able in a favorable season to produce even better quality, as he thinks the oat crop inferior this season to the usual average.

The present winter in Washington territory is the most favorable for years for an abundant wheat crop. When the "chinook" uncovered the ground recently the wheat was green and nice; then nature covered it up for its further protection.

At New Canton, Buckingham Co., Va., Feb. 10, the large bark, sumac and grist mills of John T. McKenna, together with many thousand pounds of ground bark and sumac, and 1,500 cords of stick bark, were destroyed by fire. Loss, \$15,000; insurance nominal.

Reynold & Tuttle, proprietors of the saw and planing mills at Horseheads, N. Y., are almost ready to start their new full roller mill for flour and also meal and buckwheat flour on rolls. One run of stone for farmer's grist. One feed stone. It is said to be a fine mill.

California is rejoicing in the prospect of extraordinary exports of wheat. At last advices there were in port at San Francisco sixty-five vessels under engagement for this trade, with a capacity equal to 150,000 tons, or 300,000 centals of wheat, all of which will be afloat by March 1.

The glucose works at Iowa City are reported running through 3000 bushels of corn per day, which is the full capacity of the machinery. The entire product is engaged for months. At 28 cents a bushels, the mill is therefore paying \$480 to the farmer every day, except Sunday.

The Fort William elevator of the Canadian Pacific Railway is now completed and storing grain. The capacity of this immense structure is 1,200,000 bushels. There are in all 229 bins. Over 4,000,000 feet of lumber was used in its construction. Eleven cars can be unloaded at once.

On Feb. 7 one end of Storage House No. 1, Duluth, recently erected for the temporary storage of grain, burst out and about 5,000 bushels of No. 1 hard was spread on the ground. Men were immediately put to work and the grain was put in sacks and the house repaired. The loss was very trifling.

The grain crop of the Northwestern railways, as stated by Mr. Hill in his argument before the Legislative committee, by roads, is: Manitoba, 19,000,000 bushels; Milwaukee, 4,500,000, and Omaha, 4,200,000. Of elevator and storage capacity the Milwaukee has the largest, 4,200,000 bushels, and Manitoba and Omaha, 4,000,000 bushels each.

Mr. Morgan, Secretary of the St. Louis Merchants' Exchange, has compiled his official report to the flour trade, which shows that St. Louis is the greatest flour center in the world, and, next to Minneapolis, the greatest manufacturer of this staple—1,960,737 barrels were manufactured by

fifteen mills. Foreign exports to 545,493 barrels, of which 333,118 barrels went to England, 156,865, to France, and 54,696 to Ireland. The movement eastward by rail was 392,700 barrels, South 2,037,919 barrels; inspections 941,138 barrels.

E. B. Whitmore, at the the Emery Mill, Three Rivers, Mich., has invented and patented a device to automatically regulate the supply of flour or middlings fed to all kinds of grinding rolls. The middlings is fed evenly clear across the roll, and is so arranged that when once set it will keep up a regular feed for hours without any changing or care. He has put in thirty-three set in the Emery Mill, and fifteen set for Hoffman, and the work is very satisfactory. Mr. Whitmore is a practical miller of years experience, and believes that his invention is one that millers will be glad to use when they know its good points.

The action of the Southern Railway Pool in restoring rates is in the nature of a windfall to Chattanooga and the farms throughout East Tennessee. The restored rates, which went into effect on the 18th, give Chattanooga and East Tennessee farmers a net advantage of 4½ cents per bushel on corn and wheat over Chicago, St. Louis and other Western markets, and it is likely that corn and wheat will advance 5 cents in this market because of it. Anticipating this adjustment, several of the grain men have laid in enormous quantities of grain. It is stated that one firm has 250,000 bushels on hand, and will make five cents profit per bushel.

The *Mail and Express* says: The report of the American Consul at Calcutta ought to be reassuring to wheat growers in this country. The wheat crop in India for 1884 is 245,000,000 bushels, raised on 26,000,000 acres of land, or 9 2-5 bushels to the acre. The United States average last year was 13 bushels. The Delhi price is 80 cents per bushel; cost of transportation from Delhi to Calcutta, 19½ cents; cost from Chicago to New York about 15 cents; and New York is twice as near European markets as Calcutta. If wheat can be raised and sold in Chicago at 80 cents per bushel, there can be no competition by East India growers.

Fire broke out near midnight Feb. 2 in the basement of a large flouring mill owned by Dougherty's Bros., in Burlington, W. Va., a small village five miles above Wheeling. The fire gained such headway that it was soon beyond control, and entire building and stock of flour and grain were totally destroyed, together with the books of the firm. The mill had lately been overhauled and \$10,000 worth of new machinery placed in it. A barn and small buildings adjoining were also consumed and several houses were badly scorched. For a time it was thought that the whole town would burn, and messages were sent to Wheeling for aid. The loss is from \$18,000 to \$20,000; partially covered by insurance.

The Polk county, Minn., *Journal* breaks out as follows on the wheat question: Oh, no, those dealers in wheat don't want to oppose the farmers' demand for equal justice, but—"if you pass a law that interferes with our present profitable trade if we can't bust it in the courts we will shut up shop and let your old wheat rot in the granaries!" That would be a pity, wouldn't it? If they had shut up shop last year and not handled a bushel of grain the farmers in this Northwest would have been thousands of dollars better off to-day. Wherever the farmers could find a chance to ship their grain to Duluth they beat the elevator grades and prices to the amount of from 8 to 10 cents a bushel all the same. Oh, no, these fellows don't want to oppose the farmers at all! Far from it!

A number of the States have laws authorizing persons to maintain milldams on streams that are not navigable, the dam being constructed upon property owned by the persons, upon condition that they shall pay to the owners of the land that may happen to be overflowed such damages as may be assessed. The legality of this and kindred laws has just been passed upon by the United States Supreme Court in the decision of a case carried from New Hampshire. In it the claim was made that the effect of such a law was to deprive the owners of the overflowed land of their property and the uses of it without due process of law, and hence that the statute was in violation of the Fourteenth Amendment to the Constitution. In the opinion rendered January 5, by Mr. Justice Gray, the validity of the New Hampshire act was sustained.

The explosion of the boiler in the steam flouring mill of McDaniel & Wright, at Franklin, Ind., Feb. 12, resulted in the complete destruction of the building. James High, the engineer, was instantly killed, his body being recovered shortly after the explosion. None of the other employees of the mill were seriously injured, their escape being almost a miracle, as the mill was blown to pieces and a number of

other buildings considerably damaged. A large plate glass in the furniture store of Voris & Lagrange, some distance from the mill, was shattered to pieces. The head of the boiler was blown through the roof of the residence of Frank Severance, half a square from the mill, and passed through the ceiling, lodging on a bed which but a few moments previous had been vacated by Mr. Severance. The streets for squares from the scene of the accident are strewn with fragments from the wreck.

Says the Three Rivers, Mich., "Tribune," of Feb. 13: "We noticed a few weeks since that Mr. J. W. Hoffman had shut down his large flouring mill for the purpose of making some improvements. The mill was closed about 10 weeks during which about one-half the building was adjusted to the new machinery. Five of the former cylindrical bolts were torn out and replaced by seven new bolts of the Morse pattern, which, it is claimed, is a very great improvement, enabling the manufacturer to get not only better flour, but more of it, out of a bushel of wheat. The Morse bolt is of very recent invention, not over 100 bolts being yet in use. Hence it will be seen that Mr. Hoffman is among the most enterprising millers of the country. This improvement in the Hoffman mill was concluded about three weeks ago at an expense of about \$3,000. The new bolts have been tested now about three weeks and have been found to render all the satisfaction anticipated. If there is anything Three Rivers should be justly proud of, it is excellent and superior flouring mills. Mr. Hoffman has also adopted Whitmore's automatic feed for rolls which he pronounces a first-class invention.

Some farmers, says the Glyndon, Minn., *News*, are already becoming dissatisfied with our present legislature, and are under the impression that no relief will be afforded them this session, as a large number of the lower house are new men and are trying to make a record by each one introducing a bill relating to grading wheat or regulating the railroad tariff, and instead of fixing upon something definite each one is riding a hobby of his own, and it is feared that each one will be ridden to death before March 1st. It would seem to me that what we most need here is a lower freight rate, with the same privileges afforded the farmers as the elevator companies in the shipping of grain, without being obliged to pay elevator charges as at present. It costs now a fraction over eighteen cents per bushel to the farmer to get a car of wheat from here to Duluth, with expenses for handling added just the same as it cost four years ago when wheat was worth \$1.35 per bushel. While everything else is considerably lower, railroad and elevator charges remain the same. We are willing to risk the grades here if they will give us an open market, with an equitable elevator and freight tariff.

The American Grocer published recently a carefully prepared chart showing the range of prices on leading items of food for five years between 1870 and 1884. Taking flour as an example it is shown that the quantity purchased in 1870 for 28 cents cost in 1872 30 cents; in 1878 it could be bought for 25 cents, cost in 1880, 29, while in 1884 it was but 15 cents, or less than one-half the price in 1872. The greatest decline is shown in canned peaches, which costing 35 cents in 1870, could be bought for 13 cents during 1884. Coffee seems to be the only article among seventeen of general consumption that is not much lower than it was in 1870. Speaking of the decline the grocer says: "A glance at the comparative prices of leading articles of food for the past fifteen years, evidently supports the theory that we have arrived at an era of permanent low prices. The decline has been continuous throughout the period mentioned, necessitating a readjustment in the economy of every day affairs. Prices have during the period under review, several times fallen to a point regarded below the cost of production, but through the agency of new inventions, improved methods of cultivation, cheap labor, reduced rates of transportation, lower rates of interest and other causes, producers and manufacturers have been enabled to reduce first cost."

Many of our readers says the *Pioneer Press* of Feb. 2: write that their wheat does not sell now for what it cost to produce it, and some say the same of corn, especially west of the Missouri river. No doubt this is true in many localities this year. It will be an interesting and indeed an important question, to ascertain exactly what it does cost, on the average, to put a bushel of corn or wheat into the bin, in several localities. We invite communications on this subject, from several states and territories. In a visit to the Dakota Dalrymple's farms, one of these gentlemen told us he would like to contract to raise any amount of wheat at forty-five cents a bushel, the blank land to be furnished him. We have heard the cost put as low as 35, 30 and even 25 cents. One Kansas farmer says he could raise corn of 12 cents a bush-

el, exclusive of cost of land. Let us have some facts and figures. These necessarily include interest and taxes on the land, which vary much. In making up the items, let the farmer's own time be reckoned at what he could sell it for per day. But the keep of the family should not be charged. Interest on land should not be charged the same as interest on money, for, as a rule, the improving value or price of land should be allowed for. Three to 4 per cent is the average rate of interest in the oldest states. Farms can be hired for 3 to 4 per cent on what they are held a per acre. For example, a 100-acre farm, valued at \$100 an acre, can be rented for \$300 to \$400 a year, often less. But at the West, and in these estimates for the cost of wheat and corn, we may take, say 5 per cent on the present salable price of land. Let us come down to facts, not guess-work. Who will respond? "All may speak at once."

The following statement has been sent out to the farmers of the state, from the Experimental Station at Columbus, Ohio: For two years much corn used for seed has been of poor quality. Of the 580 samples tested at the station last year, an average of a little more than 78 kernels in 100 germinated. Of this number, those samples that had been carefully dried and fairly well kept, averaged over 93 per cent., while those that were taken from the crib averaged only a little over 63 per cent. Another fact that should be borne in mind is this: Corn that shows a high percentage of vitality in midwinter may, unless properly cared for, be unfit for seed when planting time arrives. A sample of corn taken from the crib was tested Jan. 21, and 73 kernels in every 100 germinated. A similar sample was taken from the same crib Feb. 26, when only 30 kernels in 100 were found good. Another sample selected April 24 showed that only 26 in every 100 would grow. Last year over 2,840,000 acres of corn land were planted in Ohio. Allowing four quarts of seed per acre, or one bushel for every eight acres, would give 355,000 bushels of corn seed used. If only a small percentage of this vast aggregate is poor, the loss is great. In order to prevent, as far as possible, loss in this direction, the Experiment Station will test, free of charge, all seeds sent for that purpose. In selecting samples, care should be taken to secure a fair average of the whole stock to be used for seed. The corn should be selected one kernel from the middle, one from the butt, and one from the tip of each of 100 ears, the tip, middle and butt kernels kept separate. A letter should be sent at the same time stating as many facts as possible regarding the variety sent, the particular crop of which it is a sample, time of husking, manner of keeping, and points of like interest.

The first cargo of wheat shipped from Duluth went on the steamer Winslow in August 1870. Dr. Lamborn, of St. Paul, was secretary of the L. S. & M. R. R., and organized an excursion of eastern capitalists and their wives to go by rail to Duluth, where the Winslow met them to take them east by the lake route. To enable the vessel to earn something, 10,000 bushels of wheat were bought in southern Minnesota, sent north and loaded from the cars directly into the steamer, the first elevator not then being completed. This wheat went to Philadelphia. In October of the same year the first cargo was shipped from the elevator on the steamer R. G. Coburn. The first wheat for Duluth from the Northern Pacific country came from the region just beyond the great forest belt which extends for about one hundred and fifty miles west of the lake. The road was built through that region in 1871, but several years passed before any considerable wheat surplus was produced. Then the towns of Wadena, Perham, Detroit and Lake Park began to have full elevators and to load trains. A year or two later the Red River Valley was occupied, the bonanza farms were opened, the two lines of the St. Paul & Pacific, now the St. Paul, Minneapolis & Manitoba railroad, were built down the valley, the towns of Fargo, Moorhead, Casselton, Grand Forks and Crookston came into existence, and the great, new, Northern wheat belt began to be defined. For the product of this belt, the only competitor which Duluth had from the first was the Minneapolis Millers' Association, and she has no other competitor to-day. The matchless hard wheat of Western Minnesota and Northern Dakota, rich in gluten, goes either to Minneapolis to be made into flour, or to Duluth for shipment to Eastern markets. From the time this wheat began to be raised, the growth of Duluth has kept pace with the increase of the acreage harvested. It is this fact which makes the Duluth people so sure of the future of their city. Their argument on this point is very simple and rational: "We have received the past calendar year," they say "over 13,000,000 bushels of wheat. Not one acre in twenty of good wheat ground is yet cultivated in the regions tributary to this point. What Duluth will be when these regions are well settled is a matter of simple mathematical calculation."

CONCLUSIVE PROOF OF THE SUPERIORITY OF THE GRAY NOISELESS ROLLER MILL.

Is furnished by the fact that these celebrated machines will be used by Messrs. C. A. Pillsbury & Co. in their new **PILLSBURY "B" MILL**. All bidders for the work of constructing this immense mill being required to figure on using the *Gray Roller Mills*. The selection of these machines for the new "B" mill was the result of several years practical test in the other mills owned by the same firm in competition with various other roller mills, the decision being unanimous that, in all particulars, for practical work in the mill, *Gray's Noiseless Roller Mills* were superior to all others. We wish to assure our customers who may not wish to build 2,000 barrel mills, but who wish to build mills of smaller capacity, that no matter what size mill they desire to build or how small its capacity, the *Gray Roller Mills* are the best they can use, and we shall at all times furnish machines equal in every respect of material and workmanship to those which will be used in the new **PILLSBURY MILL**.

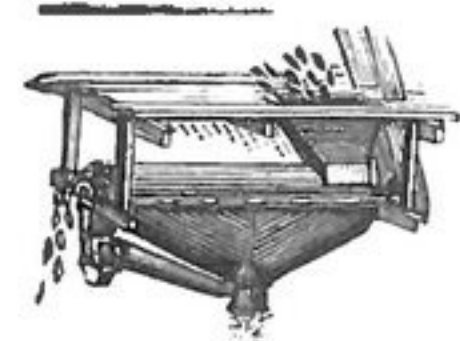
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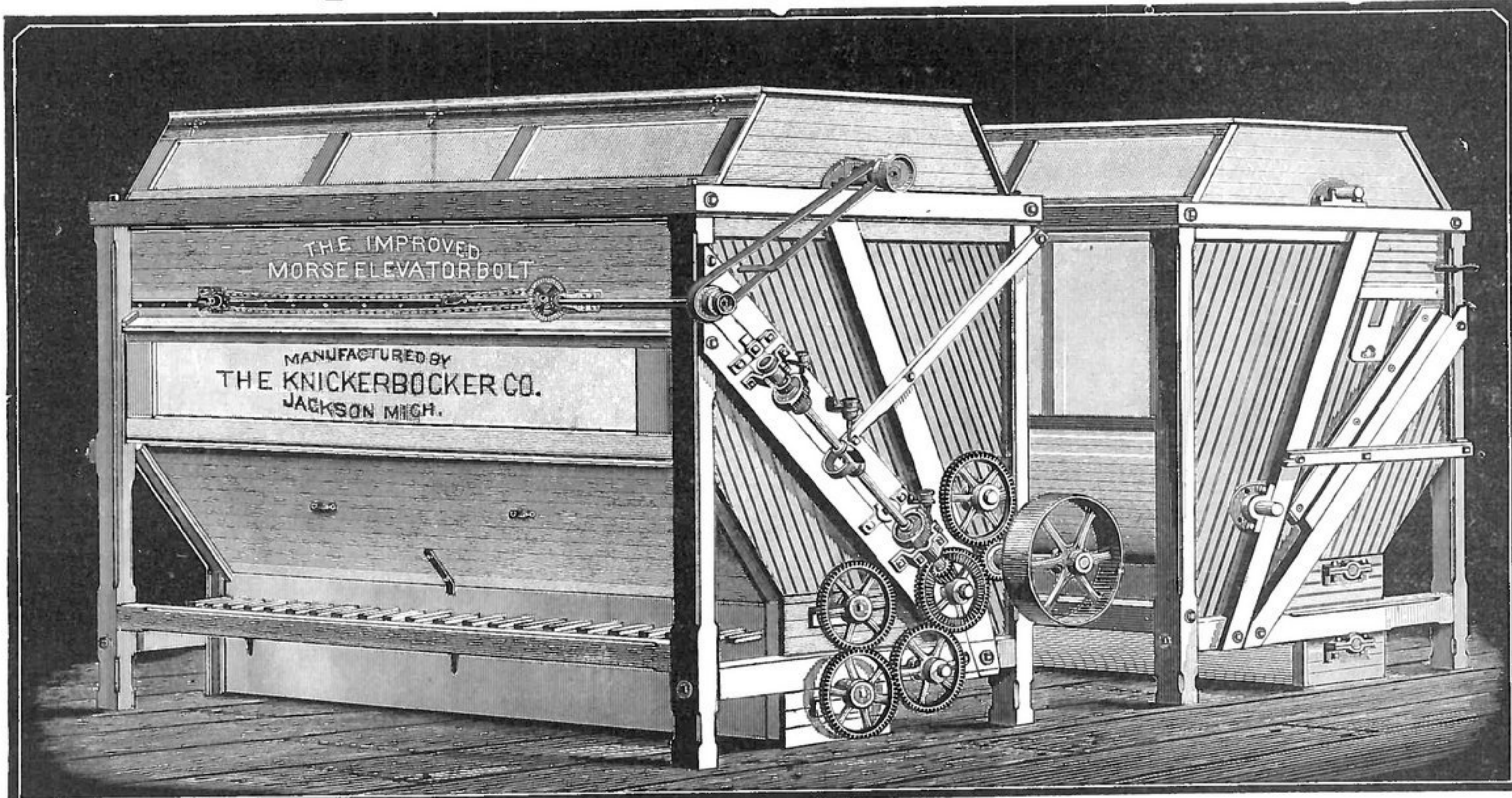
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Made of the very best double-refined English cast steel.
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All come to hand ready for use.

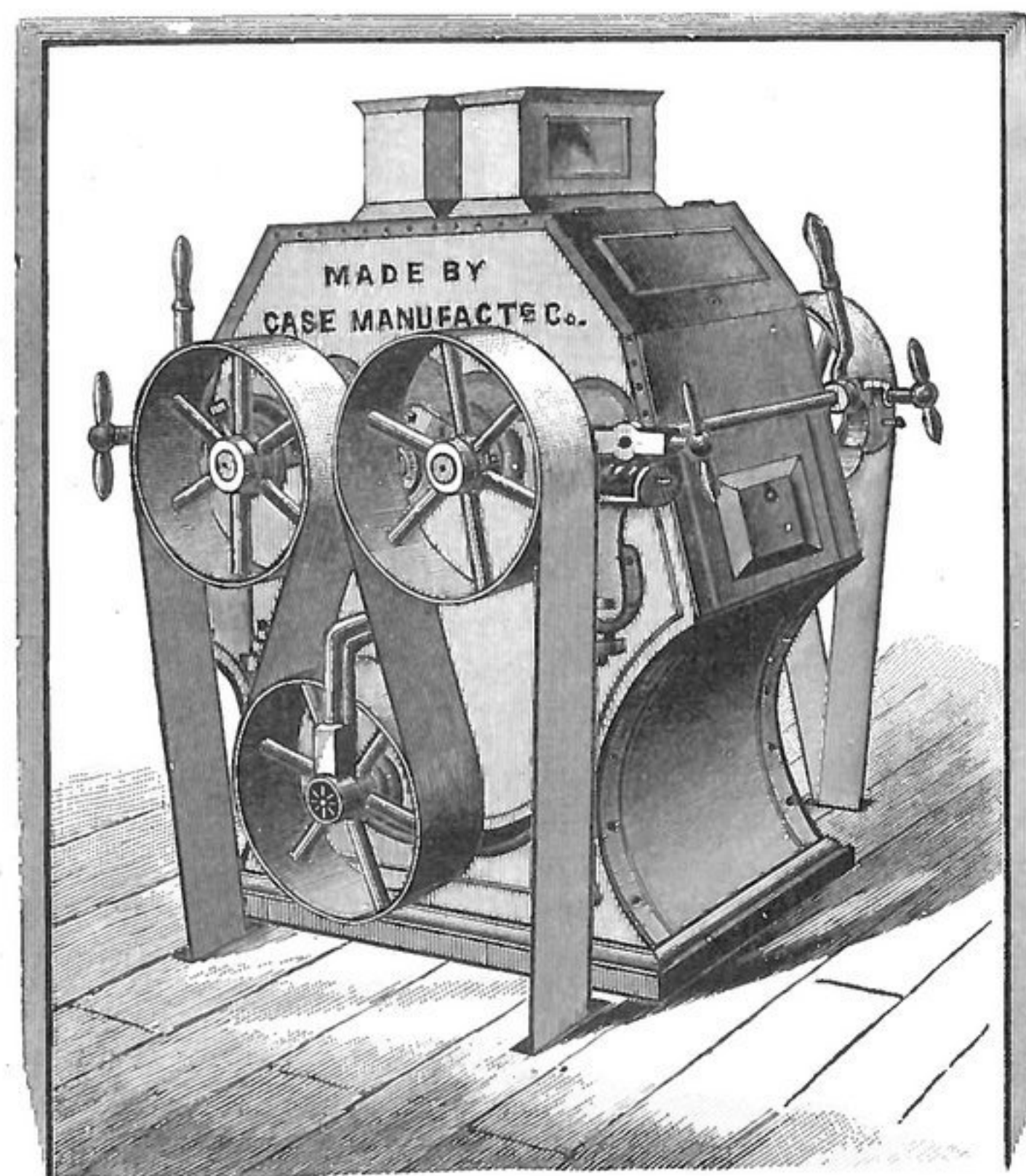
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The Improved Morse Elevator Bolt.



DEMONSTRATED IN OVER 100 MILLS TO BE THE BEST BOLTING DEVICE KNOWN.

THE KNICKERBOCKER CO., JACKSON, MICH.



9x18 4-ROLL MILL. "BISMARCK."

C. A. S. E.

CASE MFG. CO., COLUMBUS, OHIO.

XENIA, OHIO, Dec. 15, 1884.

Gentlemen: Feed box received; put it on in a few minutes; started up in a very short time. I was surprised to find my tail over as poor. I examined middlings and found them at least 25 per cent. clearer. Examined flour, was whiter and clear of specks. You know I feel happy, and all because of that little feed box. To sum it up:

- 1st. Simplicity and Durability.
- 2d. Takes care of itself.
- 3d. Feeds alike all the time.
- 4th. Will increase capacity of any Purifier one-fourth.
- 5th. Will make clearer middlings by Twenty-Five per cent.
- 6th. No miller can afford to do without one on any machine in mill.
- 7th. Perfection is the name.

Wishing you a Happy and Merry Christmas, I am, Respectfully yours,

W. H. HARBISON.

We invite all who Contemplate Making any Changes in their Mill to Write to us or Come
and See us Before Placing Their Orders.

THE CASE MFG. CO., COLUMBUS, OHIO.



THE WHEAT PRODUCTIVE POWER OF INDIA.

THE Government of India, says the "Miller," has published a resolution on the replies it has received from different sources to enquiries relative to the wheat production of India. This paper begins:—In 1880 a large collection of the many varieties of Indian wheats was made in this country and sent to the India Office for examination and report by a commercial expert. In communicating the results of this valuation to the Government of India, the Secretary of State asked for some description of the nature of the soils in which the better classes of Indian wheats are grown and of the system of cultivation followed. More particularly his lordship enquired whether the best wheats were grown on irrigated or an unirrigated ground, whether the land had long been cultivated with wheat crops, and what was the average weight of crops per acre? It was also suggested that evidence should be collected to test the truth of the not unfrequent allegation that the productive power of the soil in some parts of India has begun to fail.

The replies received from local administrations and native governments fully cover all the above points, and form a very valuable body of evidence for guidance in the future. To reduce the various kinds of wheat mentioned to a uniform and scientific classification is admitted to be impracticable, every district having its own names, and the same name being frequently applied in different places to totally distinct varieties. At the same time all Indian wheats fall into the fourfold grouping recognized in Europe as white or red, hard or soft. The soft white wheat, which commands the best price in the English market, is grown in great perfection in Northern India, Guzerat, and Rajputana. It prefers a rich loam soil, well manured and irrigated, and a moderately severe winter. Next in esteem comes the soft red wheat, many varieties of which are common in Northern and Central India. The latter district abounds in a heavy black loam soil, capable of producing excellent crops in years of average rainfall. The hard white and red wheats are less known in the north than in the central and southern districts. They are especially esteemed by the natives.

It appears that wheat is very little grown in Madras, Burma, Assam, or Bengal (excepting Behar). A rough estimate of the wheat production of the chief provinces of British India and of the more important native states is given underneath.

British India:	Acres.
Bengal (Behar).....	850,000
Northwestern Provinces and Oudh.....	6,200,000
Punjab.....	7,000,000
Central Provinces.....	4,000,000
Bombay.....	1,600,000
Berar.....	700,000
 Native States:	
Hyderabad.....	750,000
Central India Agency.....	2,500,000
Rajputana.....	2,000,000
Baroda.....	88,000

Wheat, it may be mentioned, is often grown as a mixed crop with other grains, and in all estimates of the wheat production a difficulty arises as to the inclusion or exclusion of such areas. In the Northwestern provinces, for example, two million acres are returned as being under these mixed crops, but for the purpose of this calculation they have been taken to represent only one million acres of wheat. Similar corrections are required in the figures for other provinces.

The broad result of this enquiry is said to show that the area under wheat in British India is about 20 million acres, and the

yield between $5\frac{1}{2}$ and 6 million tons. The area in native territory would give an additional six million acres, yielding about $1\frac{1}{4}$ million tons. Of this $6\frac{3}{4}$ million tons, or 135 million cwts., the quantity available for export to Europe must be a matter of the vaguest conjecture. It is known, however, that fifteen million cwts. were exported for the twelve months ending 31st December, 1882, and this has been followed by an export of $22\frac{1}{3}$ millions during the twelve months ending 31st December, 1883. It is perhaps not unreasonable to suppose that, when the railway system is more developed, one-fourth, possibly more, of the total out-turn of $6\frac{3}{4}$ million tons will, in good years, be available for Europe. It is, however, to be noticed that in spite of the large export to Europe, and of the partial failure of last autumn's monsoon, the price of wheat is slightly lower now than it was two years ago. The contraction of the export to $3\frac{1}{4}$ million cwts. for the three months ending 31st December, 1883, has been due not to any rise in price in India, but to the low prices ruling in Europe. Wheat is still selling at about 18s. 6d. the quarter at Jubbulpore, a price which gave a good margin of profit to the exporter when the London rate was 43s. the quarter, but not when, as now, the London rate has fallen to 40s. for the best English wheats, and to 33s. to 36s. for Indian wheats.

Speaking of the alleged deterioration of the soil, the report says: The replies are, on the whole, encouraging. Frequent mention, it is true, is made of the popular belief that the soil has ceased to bear the rich crops which once rewarded the ploughman's toil. But the cases are exceptional in which this belief appears to embody a truth. Overcropping will, of course, exhaust any soil, and the rapid extension of canals has undoubtedly encouraged the more improvident and poorer cultivators to overcrop. Irrigation always tends at the outset to out-turn the manure supply, and this is one of the chief drawbacks to the many benefits derived by the country from canals. In the Nerbuda Valley a falling off in the exuberant yield of the virgin soils has also been reported by careful observers. But when once the first riches of the land have been exhausted, a permanent, though lower, standard of out-turn appears to be reached. The phenomenon is common to all newly-opened countries, and is not a matter which need excite either concern or astonishment.

NOTES.

It is estimated that the yields of wheat in the colonies of South Australia and Victoria will reach an average of ten bushels per acre.

The total area under cultivation of rice in Burmah is reported as 3,640,000 acres. An average crop all over the Province ought to yield an exportable surplus of 988,000 tons of cargo rice. Although many of the district officers anticipate a crop considerably above the average, it appears better not to estimate for an exportable surplus of more than 975,000 tons, or 104,000 tons below the actual exports of 1882.

During the past year several bread factories have been erected in different German capitals; but at present it is, perhaps, too early to say with what success. The enterprise has naturally excited an opposition from the bakers, who in Vienna, where the factories are conducted by millers, have tried to secure the closing of these establishments by the public authorities, on the ground that the use of a mill as a bakery constituted an infringement of the bakers' patent. Failing to secure the intervention of the law, the Vienna bakers have collectively resolved to "boycott" any miller who makes and sells bread. The same action has been taken by the bakers of Berlin, who have also to face the competition of baker-millers. A large bread factory was recently established by a miller at Frankfurt-on-the-Main, and it is said that the bakers of the locality are about to adopt the same measures of reprisal against this gentleman's mill and bakery, which have been put into force at Berlin and Vienna.

Glasgow is the city fixed upon by the Council of the British National Millers' Association for the Millers' Convention, to be held in June next.

A better choice could probably not have been made, says the *Miller's Gazette*; Glasgow as a milling centre is probably ahead of any other city in the kingdom, with the simple exception, perhaps, of Liverpool; half a dozen different systems are to be seen at work in Glasgow mills, and we are pleased that their proprietors will exercise that liberal and large minded spirit, which is not the least conspicuous element in milling reform during the past few years, by throwing open their mills for the benefit and instruction of their brethren from across the border. And as pleasure trips form an essential part of Millers' Conventions, it may be said that those who have the good fortune to take part in this Convention, will be within easy distance of some of the finest scenery in the world, and we doubt not that some very pleasurable trips will be organized. In this connection we may mention that it has been decided, with perfect appropriateness, to ask a leading Scotch miller to assume the important office of President of the Association for the ensuing year.

Le Meunier reproduces a letter addressed, with ill-advised judgment, by M. Lockert, the Commissary-General of the forthcoming Milling Exhibition in Paris, to English mill furnishers. In this letter M. Lockert repeats the statement that the meeting at the office of Mr. Chatterton on Dec. 19, was not representative, since it was attended by only six persons; it had, however, already been pointed out to Mr. Lockert that twelve of the leading English mill furnishers acquiesced in the resolution which was passed to the effect that it was not desirable to take part in the exhibition. Mr. Lockert, however, reflects with questionable taste upon German made milling machinery, which he says French millers have to put up with against their inclination, the native mill furnishers being too few to supply the wants of French millers. Thus, he concludes, English milling engineers are missing a golden opportunity in not grasping the present opportunity of placing their matchless workmanship before the eyes of French millers at the forthcoming Paris Milling Exhibition. *Le Meunier* considers that the French Minister of Agriculture is not likely to have given his distinguished patronage to be utilized in such a manner as this.

AN ENGLISH OPINION.

That great general dissatisfaction exists, except in a few favored centres, like Glasgow, with the quality of our contemporary loaf, is well known, says the "Miller," and there is undoubtedly among us, as a nation, a craving for the fine fancy breads of the Continent or of luxurious New York. No doubt the normal household loaf of the British baker might quite easily be made very much better than we know it to be, but it may be interesting, and profitable too, to know that just now in America, at least, a cry is being raised by some of our grave and potent seigniors of our advanced sanitary science against the bread in ordinary use among the well-to-do and upper classes, and the point in the whole, to put the matter briefly, seems to consist simply in this fact, that the bread is much too palatable! Dealing with the whole question, a well-informed and authoritative American source says that bread is about the first article of diet which needs watching in all cases where there is any weakness in digestion; and undoubtedly this very weakness is frequently due to the defects of the bread itself.

America, as readers of "Martin Chuzzlewit" may remember, is quite a land of dyspeptics. In no country, perhaps, are the horrors of indigestion experienced by so large a proportion of the population. These, if we may believe our American informants, are due chiefly to bread. It is true that bread in the United States is a rather elastic term, as it includes all kinds of griddle cakes, hot biscuits, rolls, muffins, waffles, and a large miscellaneous host of delicacies, with flour for their staple substance. All this mass of "fancy" bread may be not only very good in itself, but quite harmless if only consumed in reasonable quantities and under normal conditions. In America, however, everything is done in more or less of a hurry, and the well-known and extremely mischievous practice of eating with a railroad rapidity is but a parallel

to the rapidity wherewith food has to be prepared and served up in this land of hot haste. We are assured on good authority that it is deemed scarcely hospitable to set before a guest at the breakfast table cold bread, and it is of course de rigueur to eat the appalling dainty. This practice has grown quite a national trait.

Now, touching the chemistry of hot bread, we must pause a moment to consider shortly bread in general. Raw paste is very nearly absolutely indigestible, but when properly baked, what is more wholesome or digestible? Now in baking, roughly speaking, the paste is expanded into an edible substance by means of carbonic acid gas; but while bread is still hot the process is not complete, and, therefore, those who eat bread in that condition eat something that is still uncooked, and which remains virtually indigestible. All bread brought to table in a hot state is extremely hurtful, and should be sedulously eschewed; and if eaten with avidity, as it often is, must inevitably work serious evil to even the strongest constitution. Such is the sum and substance of this diatribe against the American practice of indulging in hot bread. We do not think that in this country many persons err in this direction, but we fancy that the strong tendency towards a vastly increased use of what must be termed fancy bread is hardly a move in a hygienic direction. For one thing this bread, being made in small portions, is generally eaten new, although not hot, as a rule, and it is apt to be mixed with ingredients which, although perfectly harmless per se, are not in themselves any improvement to the bread from a strictly health view-point. The use of fancy breads, too, of a more or less cake-like flavor is, we think, a dietetic error on the part of those who set store on health, and it will ever be found that the best ordinary loaf, baked in the best manner, and eaten a day old, is a more health-giving basis of everyday diet than Vienna rolls or other confectionery-like "conceits" of the æsthetic baker of the period.

WHY WE HAVE NO MERCHANT MARINE.

The Massachusetts Tariff Reform League, had a meeting the other night in Boston, at the Old South Meeting-house, at which Mr. W. G. Gibbons, of the well-known ship-building firm of Pusey, Jones & Co., Wilmington, Del., speaking upon the decadence of the American commercial marine, said: "During the first half of the present century, when values of merchandise of all kinds were not widely different from the ratings of European countries, the American shipowner sent his vessels out upon the world's high seas, in full confidence of his ability to compete squarely, evenly and profitably to himself with any and all who might choose to contest with him for the prize of a full share of the carrying trade.

"At any time during the past eighteen years, let us imagine an American ship at the port of Calcutta in search of a cargo. An English vessel of the same size and class is there also, and upon the same errand. The captains of each are, by consequence, competitors for the same business. The American, whose ship is built of 'protected' materials, supplied with 'protected' windlass, anchors, chains, sails, cordage, rigging, cook's outfit, signal lights, compasses, chronometer and other instruments of navigation, the materials of which the clothing of the officers and crew are made—all these have contributed their respective shares to augment the burden of the unfortunate American, in that their great cost requires him to secure a proportionately increased price for the work his ship performs. Nor is this all. Because insurance companies are themselves subjected, in more or less degree, to the consequences of the benefi-



Office of THE MILLING WORLD,
Buffalo, N. Y., Feb. 18, 1885.

The Commercial Bulletin reports the stock of wheat in store at New York at 6,192,021 bushels, against 6,195,569 bushels last week—a decrease of 3,548 bushels. Stock of No. 2 red wheat, 5,041,808 bushels against 5,062,291 bushels last week—a decrease of 20,482 bushels. It has been a stupid market in wheat, although at a higher range of prices. The public news from abroad dull; private news flat. English farmers appear to have been influenced by the slow demand for wheat, and deliveries last week were only 460,000 bushels at 187 towns, and at all points 1,150,000 bushels estimated. The local situation was unchanged. Exports of wheat last week from New York were 184,000 bushels, and the stock of wheat in store decreased only 3,000 bushels. At the West, heavy snow storms on Saturday night and Sunday renewed the partially raised blockade of last week, and receipts in consequence were light, and are likely to be until the blockade is completely raised. A very cold wave swept down after the storm, and the temperature is below zero. The more bullish reports come from Chicago. There has been some little talk for several days past about the markets being oversold. A prominent commission merchant at Chicago, who has been interested in several pools, wrote that it was reported that a clique had bought 30,000,000 bushels of wheat. He estimated the amount of the purchasers at 20,000,000 bushels. The basis for purchases was the low price, decreased average, oversold markets and alleged shortage in stocks of wheat and wheat flour compared with last year. Telegrams reported some buying at Chicago on the reported dispatching of more troops by Russia into Central Asia, and rumors of crop damage in Southern Indiana. As there was no confirmation of the reported crop damage, and the foreign buying was insignificant, the market closed dull.

There is a pretty good demand for low grades flour, but the supply is very limited, and sales are therefore very limited. The fancy grades, however, are not wanted, except good patent spring wheat flours at \$5.50a.50, these being the strongest thing on the whole list of high-priced flour. The market for other high grades remains entirely nominal. The market for rye flour has remained quiet but steady at \$3.50a.3.80, the latter for fancy. Buckwheat flour is in good demand and the market is firm, owing to the scarcity of fine grades; \$2.00a.2.50 is the range, but the latter price is for fancy. For corn goods there is a fair demand, with the market ruling about steady. Mill feed is firm at unchanged prices; track receipts are still light, and offerings of city feed moderate; bran quoted at 80a.82½c; middlings, 80a.90c.

BUFFALO MARKETS.

FLOUR—City ground clear Northern Pacific spring \$4.75@5.25; straight Northern Pacific spring, \$5.25@5.75; amber, \$5.00@5.25; white winter, \$5.00@5.25; new process, \$5.75@6.00; Graham flour, \$4.50@4.75. Western straight Minnesota bakers, \$5.00@5.25; clear do, \$4.75@5.25; white winter, \$5.00@5.25; new process, \$6.25@6.50; low grade flour, \$2.75@4.00. OATMEAL—Ingersol \$5.00; Bannerman's \$5.25; Akron \$5.50. CORNMEAL—Coarse, 90c; fine, \$1.10 per cwt. RYE FLOUR—In fair demand \$4.00@4.25. WHEAT—No. 1 hard Northern Pacific nominal; at the Call Board 95c asked, 98c bid cash; 94c asked, 98c bid Feb.; 95c asked April, 95½c asked May; for No. 1 Northern, 93½c asked cash and Feb.; 94c asked May. Winter wheat quiet and steady. Sales 1,000 bu No. 2 red at 90c March, 1,000 bu do at 89½c April, 1,000 bu do at 90½c May; for No. 1 white at the Call Board 92c asked, 90c bid cash and Feb.; 91c asked, 90½c bid March; 92½c asked, 00c bid April; 92½c bid May. CORN—Scarce

and ½c better. Sales five car-loads No. 2 at 47½c, 8 do No. 3 at 46½@46¾c, and 2 do No. 2 yellow at 47½c; for No. 2 at the Call Board, 47½c asked, 46c bid cash; 44c bid May for No. 3, 46½c asked, 45c bid Feb. and March; for No. 3 yellow, 47c asked, 46½c bid cash and Feb.; 45c bid May. OATS—Firm. Sales 2 car-loads No. 2 mixed at 34½@35c. 1 do No. 2 white at 35½c, to arrive; 1 do at 35½c on track. At the Call Board, for No. 2, 35c asked, 33½c bid on track and March; for No. 2 white, 35½c asked cash; 36½c asked Feb. and March. BARLEY—Quiet. Canadian quoted at 73@98c; State at 60@77c, and Western at 62@75c, as to color and quality. RYE—Choice State 80c, No. 2 Western at 74@75c.

FOREIGN EXCHANGE.

The market for sterling was extremely dull, due partly to the severe storm. Posted rates were 4.84 a. 4.87½. Actual rates were as follows: Sixty days', 4.83¼ a. 4.83½; demand, 4.86½ a. 4.86¾; cables, 4.87 a. 4.87¼; commercial bills, 4.81 a. 4.82. Continental bills were quoted as follows: francs, 5.23½ a. 5.22½ and 5.20½ a. 5.20; reichsmarks, 94½ a. 94¾ and 95 a. 95¼; guilders, 40½ and 40¾. The closing posted rates were as follows:

	60 days.	30 days.
London	4 84	4 87½
Paris francs	5 20½	5 18½
Geneva	5 20	5 17½
Berlin, reichsmarks	94½	95½
Amsterdam, guilders	40½	40¾

WINTER WHEAT AREA.

S. W. Tallmadge, Milwaukee, Wis., is in receipt of the following late information as regards the area, condition and prospects of the winter wheat crop:

Virginia—Randolph Harrison, Commissioner of Agriculture, says: "I have official figures from all sections of the state, and the acreage is short fully 30 per cent. from last year. As regards the conditions since my last report to you, I have advices from the southwest portion of the state reporting the wheat as being almost destroyed, winter killed, and from advices, and what I have seen in the last few days, the prospect for wheat is worse than it has been since 1866. Alternate freezing and thaws, with no snow to protect it, is the principal cause."

Maryland—The area sown to wheat is fully 25 per cent. short, as compared with last year. We hear of no serious damage. The condition, however, is not flattering, owing to haste in sowing and the soil not being fully prepared to receive the seed.

Missouri—J. W. Sanborn, Secretary of the State Board of Agriculture, says the area sown to wheat is 10 per cent. short of 1884. "I hear of but little damage to the plant as yet."

Illinois—The acreage sown to wheat is about 15 per cent short of last year. Some damage, but not serious, was reported in the southern part of the State early. The ground is now covered with snow, and I will not be able to tell much about the condition of grain until the snow goes off.

Tennessee—A. J. McWhirter, commissioner of agriculture, says the crop of Tennessee is fully 20 per cent less in acreage than less year, and the damage by freeze is all of 10 per cent.

Kansas—The area sown to wheat in this State is about 30 per cent as compared with last year. Some of the largest wheat-growing countries in the State have reduced their wheat area from 25 to 50 per cent, owing principally to the ruling low price of wheat during the past season. The condition of the growing wheat is not up to the standard. Some sections report damage by insects in the fall, and owing to the severity of the winter many predict injury by winter killing. However, it is too early to tell much about the latter.

Kentucky—A. J. Bowen, Commissioner of Agriculture, says the acreage sown to wheat in this state is from 10 to 15 per cent. less than that of the previous year. The winter has been very unfavorable. Alternate freezing and thaws have lifted the plant to the surface, and it is in a badly crippled condition.

North Carolina—The area sown to wheat is very much less than last year, and the condition is not very encouraging, on account of the long continued drouth of last fall. The winter has been unfavorable, and much complaint of winter killing is heard.

New York—The area sown to wheat is somewhat less than last season. The condition is quite favorable. No damage by winter killing or other causes is heard of.

West Virginia—John H. Strider, Statistical Agent, under date of February 4, says: "The acreage of West Virginia is short fully 20 per cent., as compared with last year. The condition is very unpromising. With our worst weather, March winds, freezing and thawing yet to pass, the present outlook will not warrant a half crop."

Georgia—The extreme drouth of the fall extended almost to December, and has caused a large falling off in the area sown to wheat. The condition is very unfavorable owing to the unseasonable weather during the fore part of the winter.

Minnesota—H. H. Young, Statistical Agent of Minnesota, says in regard to the spring wheat seeding: "The area sown to wheat will probably be fully 10 per cent. short of last year, or not more than 2,500,000 acres."

Dakota—James H. Bains, Statistical Agent of Dakota, says that not more than one-eighth of the crop in Northern Dakota and three-eighths in Southern Dakota remains in farmers' hands, and the elevators are kept well cleaned out. If prices remain low, the area to wheat will not be increased any this spring.

AN AUSTRIAN SPECULATOR.

One of the most expert speculators in Vienna is a man named Heinrich Kuffler. Over there, however, they with brutal frankness, call such men swindlers. Some of his late tricks are so good that even Jay Gould might take lessons from him. The Austrian speculator is fully up to Mr. Ward, on a smaller scale, however.

Not long since, Kuffler appeared in the office of a wealthy lumber dealer who owned an immense lumber yard in the heart of the city. At this time there was a perfect mania for building houses in Vienna, and available lots commanded fancy prices.

"I want to buy the land you have got your lumber yard on. I want to put up a big hotel on it," said Kuffler.

"I don't care to sell."

"But I have got to have it. It is the only suitable place in this part of the city. I'll give you half a million."

"I don't what to sell. I would not sell for a million."

"I will give you a million."

The lot was not worth a million, but as the merchant had his lumber on it, and was wealthy, he did not care to accept the offer.

"No, I would rather not."

"I'll give you a million and a quarter, and to show you that I am in earnest. I'll put up fifty thousand marks forfeit. I must have a big lot on which to put up my new

hotel," said he, placing that amount in thousand mark notes on the table.

The poor lumber dealer became nervous and excited. Great beads of perspiration stood on his brow. He asked for twenty-four hours to think about it. The trade was then concluded. The lumber was to be cleared away before two months. The fifty thousand marks forfeit were to be paid over at the end of a week. The lumber dealer was satisfied on that point. He knew Kuffler had the money.

The lumber man then proceeded to hunt for another lumber yard. Suitable vacant lots were extremely scarce. A land agent, however, who had heard that the lumber dealer was looking for a lot, offered him one for six hundred thousand marks, but only gave him the refusal of it for twenty-four hours. He said he could get that amount from another party. In his anxiety to sell the place to Kuffler for a million and a quarter, the lumber merchant paid down six hundred thousand francs to the agent.

Next day Kuffler notified the lumber dealer that he would pay over the fifty thousand marks forfeit as he was unable to raise the million and a quarter, the purchase money for his lot.

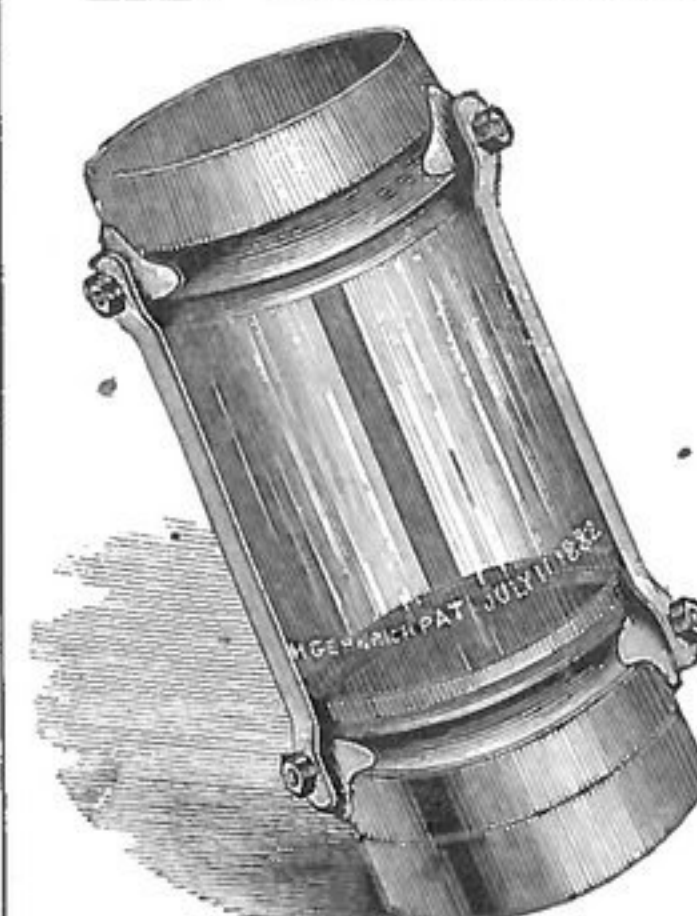
With the aid of a skillful agent, the speculator had sold to the lumber merchant for six hundred thousand marks a lot only worth four hundred thousand marks, thereby profiting, after paying the fifty thousand marks forfeit, a cool 150,000 marks.

The lumber merchant has now two lots on his hands, and is also in possession of considerable experience.

THE extent to which the grain exports have been diverted from the sailing vessels to the steamers is indicated by the fact that of 45,393,787 bushels exported last year only 2,431,988 bushels, or 5½ per cent. of the whole, went by sailing vessels. Probably from no other port except Boston is the proportion going by sail so small. The steamers frequently make lower rates than the sailing vessels, because they take grain to fill out cargoes of freight that pay higher rates, and accept whatever rates will command the shipments, while the sailing vessels usually get no other freight, and so must have a paying rate on grain to justify their sailing. The steamers, however, mostly ply on regular routes, and consequently can deliver at but one European port, and the additional cost of transferring from Liverpool, etc., to other European ports often makes it better for the shipper to pay a higher price to have his grain carried directly to a port near where the grain is to be consumed. The "tramp" steamers undertake this transportation as well as the sailing vessels. Altogether 1,120 steamers carried grain abroad from New York last year, and only 101 sailing vessels. The average shipment per steamer was 38,358 bushels; per sailing vessel, 24,079 bushels. This is but a fraction of the load of most of the ocean steamers, but it was probably pretty nearly full load of the sailing vessels.

GEHRICH'S PATENT GLASS TUBE JOINTS

AN IMPORTANT INVENTION FOR MILLERS.



This invention consists of a Glass Tube Joint, which can be made to correspond in size to and be inserted in any tin spout used to convey grain, meal, etc., in the operation of Grinding Flour and other substances. A section of the spout is thereby *Rendered Transparent*, enabling the miller, or any one passing by, to see at a glance whether the contents of the spouts are properly running. By the use of this appliance the necessity of frequently opening spouts is avoided, and the consequent saving of time and flour is very important in an economical point of view. These Glass Tube Joints have given the most complete satisfaction, and are esteemed as an indispensable requisite wherever they have been applied. Full information furnished on application to the inventor.

H. GEHRICH, 54 Rutgers St. NEW YORK CITY.

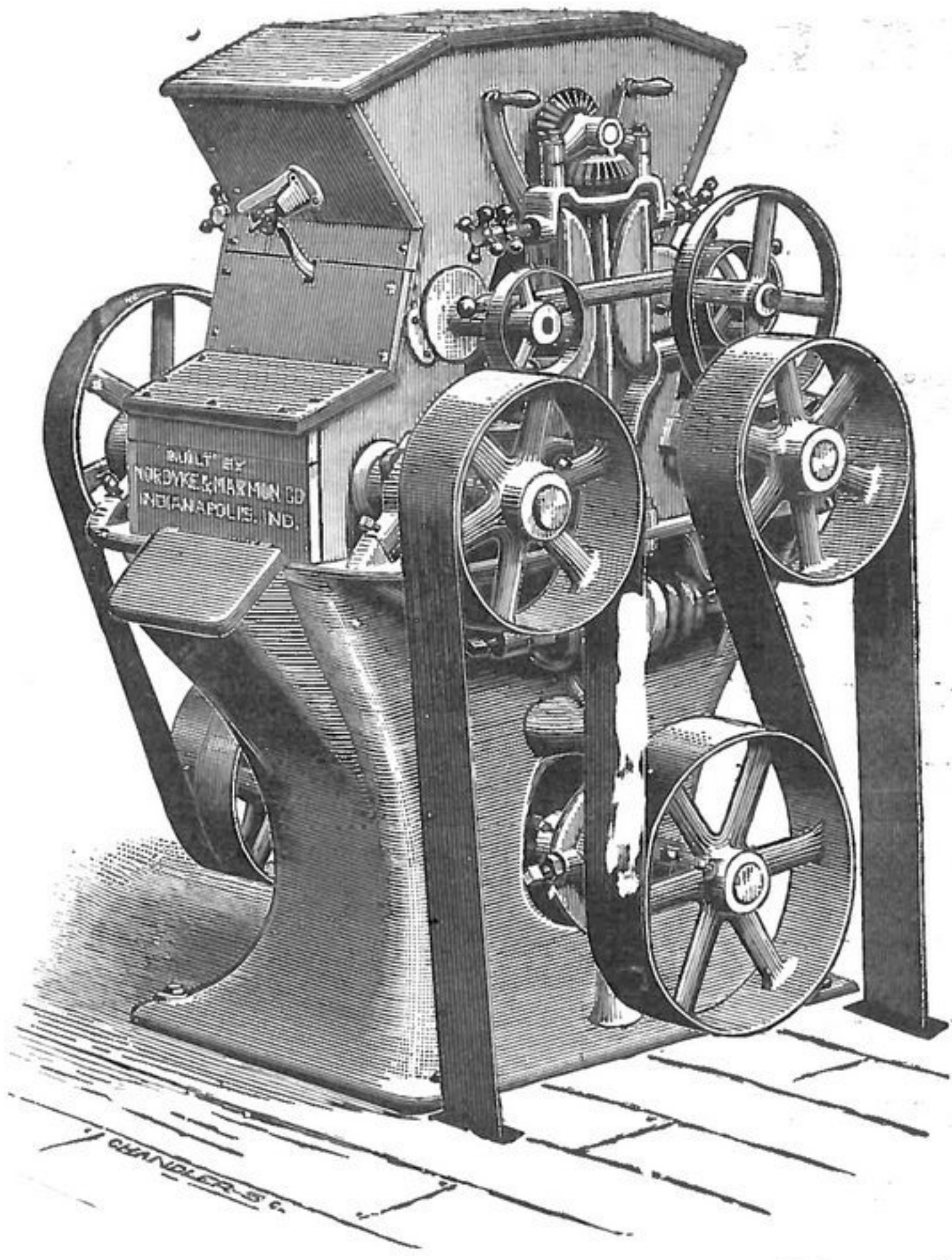
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100 BARREL MILL IN TENNESSEE.

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Gentlemen: Our mill, as planned and diagramed by you, has been in steady operation for near one year past, and in proof that you have given us a successful job, we will simply say that in the face of very dull trade, and while other mills were running on short time, we have been running full handed, in order to supply a genuine demand for our flours. We must also notice, that although you only promised us 100 bbl. capacity, we easily make 140 bbls. per day without deteriorating in grades of flours. We use No. 2 wheat, and consume 4 bushels and 28 lbs. in making a barrel of flour. We make about 26 per cent. of very high patent, 68 of bakers' and 6 per cent. of low grade. Yet our mill is so constructed that we may vary these percentages to suit various markets. We have always been victorious in the sharpest competition, and from the first day of starting we have kept the highest position among all roller mills either located or represented in this region.

Yours truly,

G. W. COWEN & CO.

MEMPHIS, TENN., Dec. 16, 1884.

300 BARREL MILL IN ILLINOIS.

MESSRS. NORDYKE & MARMON CO., INDIANAPOLIS, IND.

Gents: We started up our mill in June last year, and it gives us pleasure to say that your Roller Mills are doing splendid work and give us no trouble. Your milling program required no changes, and concerning yields, we get all the flour from the offals, and we sell our best grades in the principal markets of the United States at the highest prices offered for any flour. All the machinery made by you is first-class, and we would not know where to purchase as good.

Yours respectfully,

DAVID SUPPGER & CO.

OFFICE OF DAVID SUPPGER & CO.,
HIGHLAND, ILL., Jan. 10, 1884.

125 BARREL MILL IN INDIANA.

NORDYKE & MARMON CO., INDIANAPOLIS, IND.

Gentlemen: The 125 barrel All Roller mill you built us has been running all summer, and does its work perfectly. Before contracting with you for this machinery we visited many Roller Mills throughout the West and Northwest, built by the different leading mill furnishers, and from all we could see, those built by you seemed to be giving the best satisfaction, and this is why we bought our machinery of you. Our mill comes fully up to your guarantees, and the capacity runs over your guarantees. The bran and offal is practically free from flour, and our patent and bakers' flour compares favorably with any we have seen elsewhere. I don't think anyone can beat us. Your Roller Machines are the best we have seen; they run cool, and the interior does not sweat, and cause doughing of the flour. Judging from our success, we would recommend other millers to place their orders with you.

Yours truly,

J. T. FORD.

LAPEL, MADISON COUNTY, IND., Jan. 10, 1884.

Letters on file in our office from a large number of small roller millers giving as favorable reports as above. A portion will be published as occasion demands.

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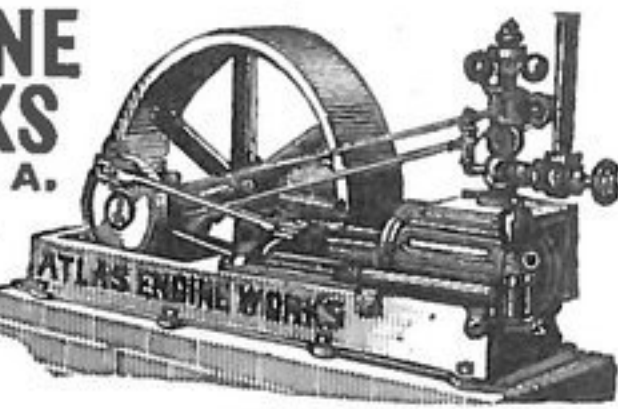
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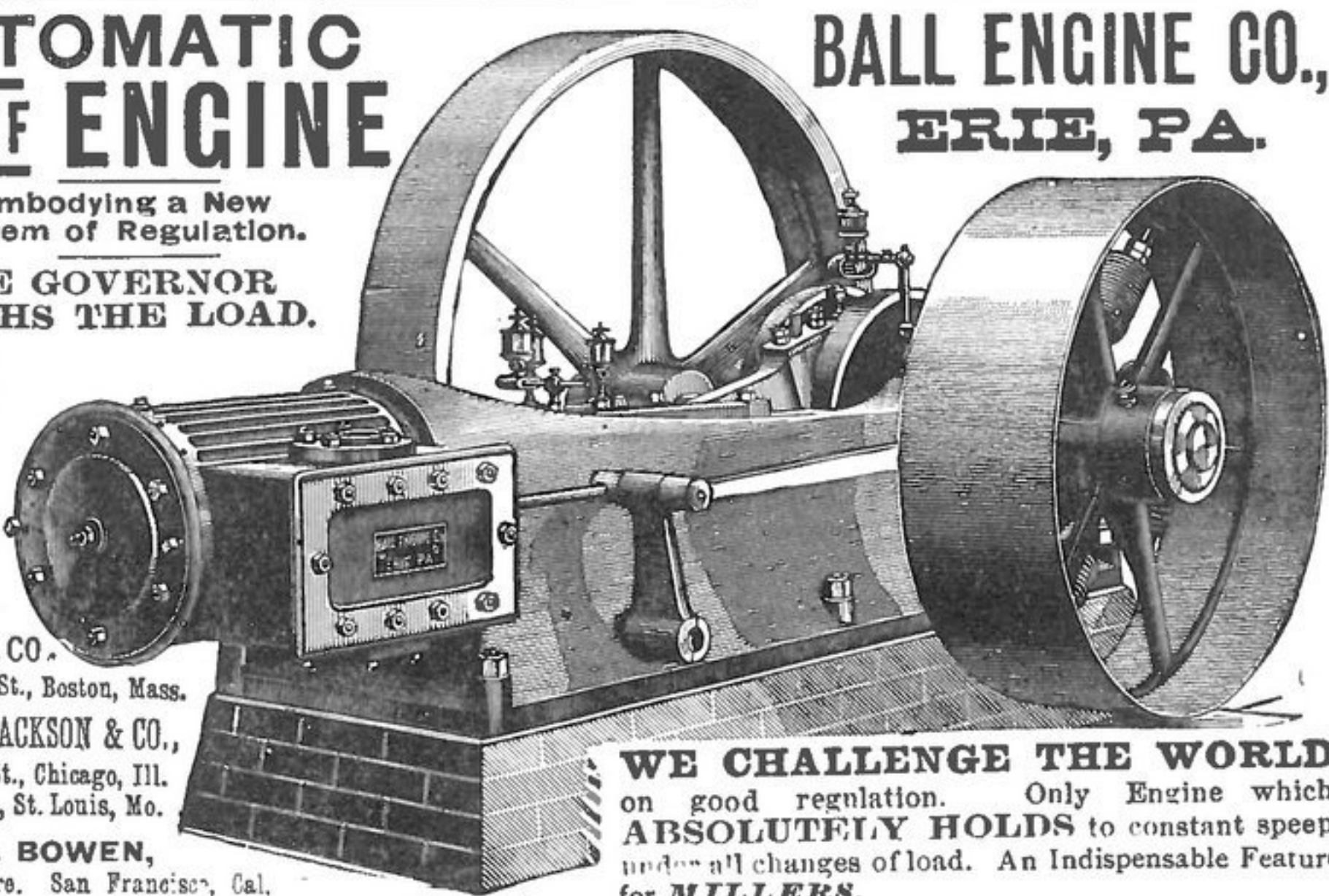
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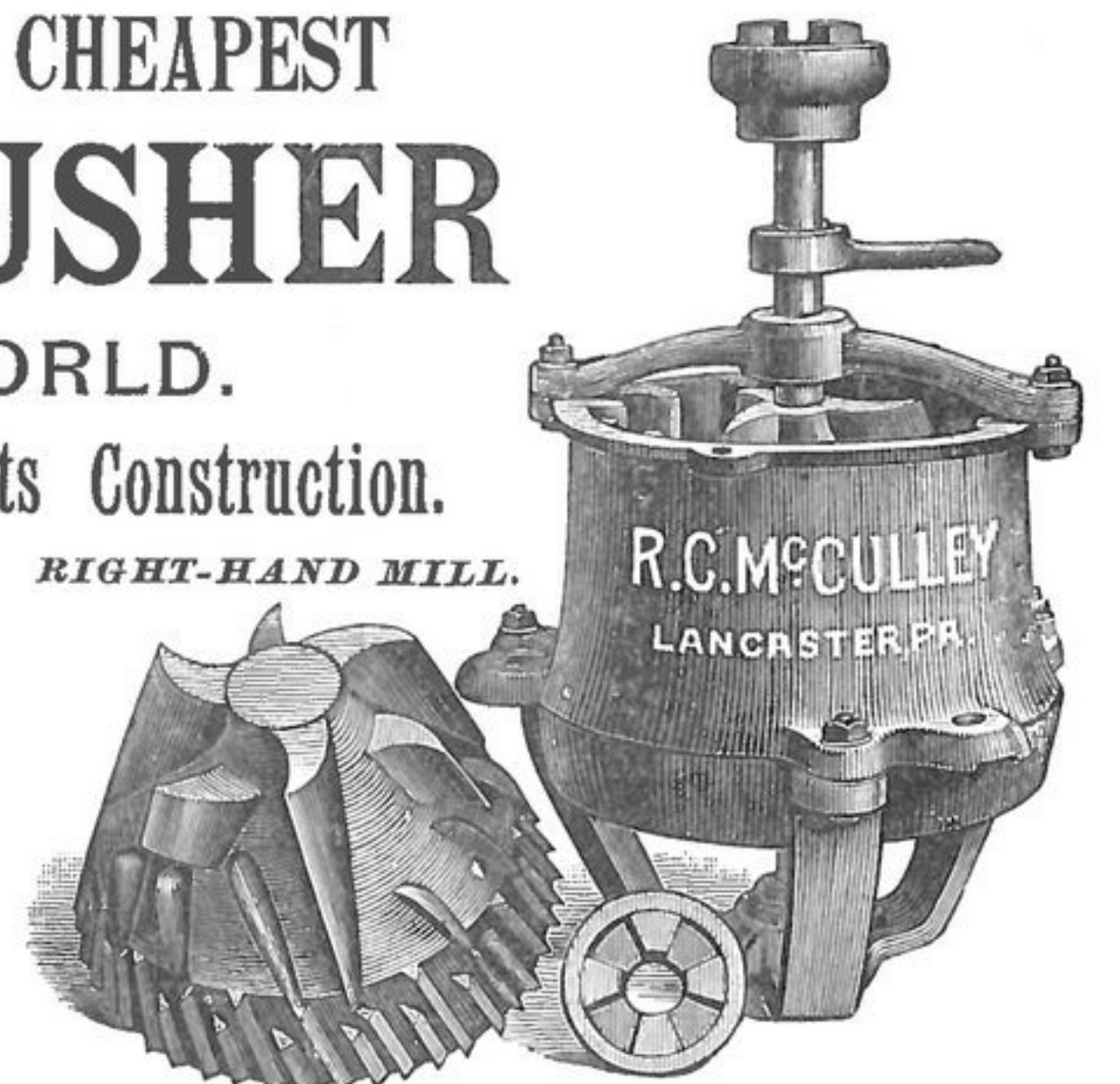
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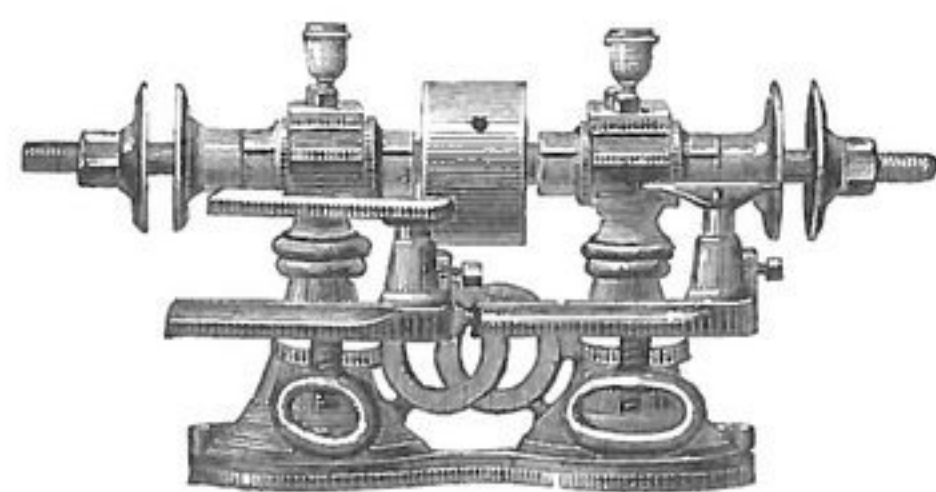
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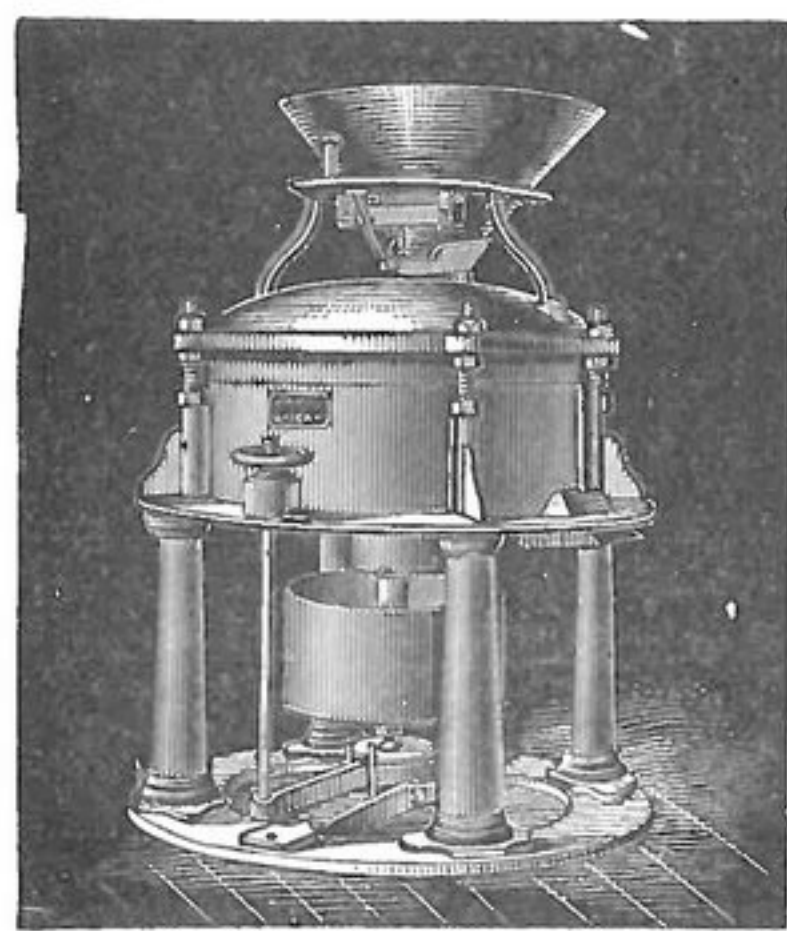
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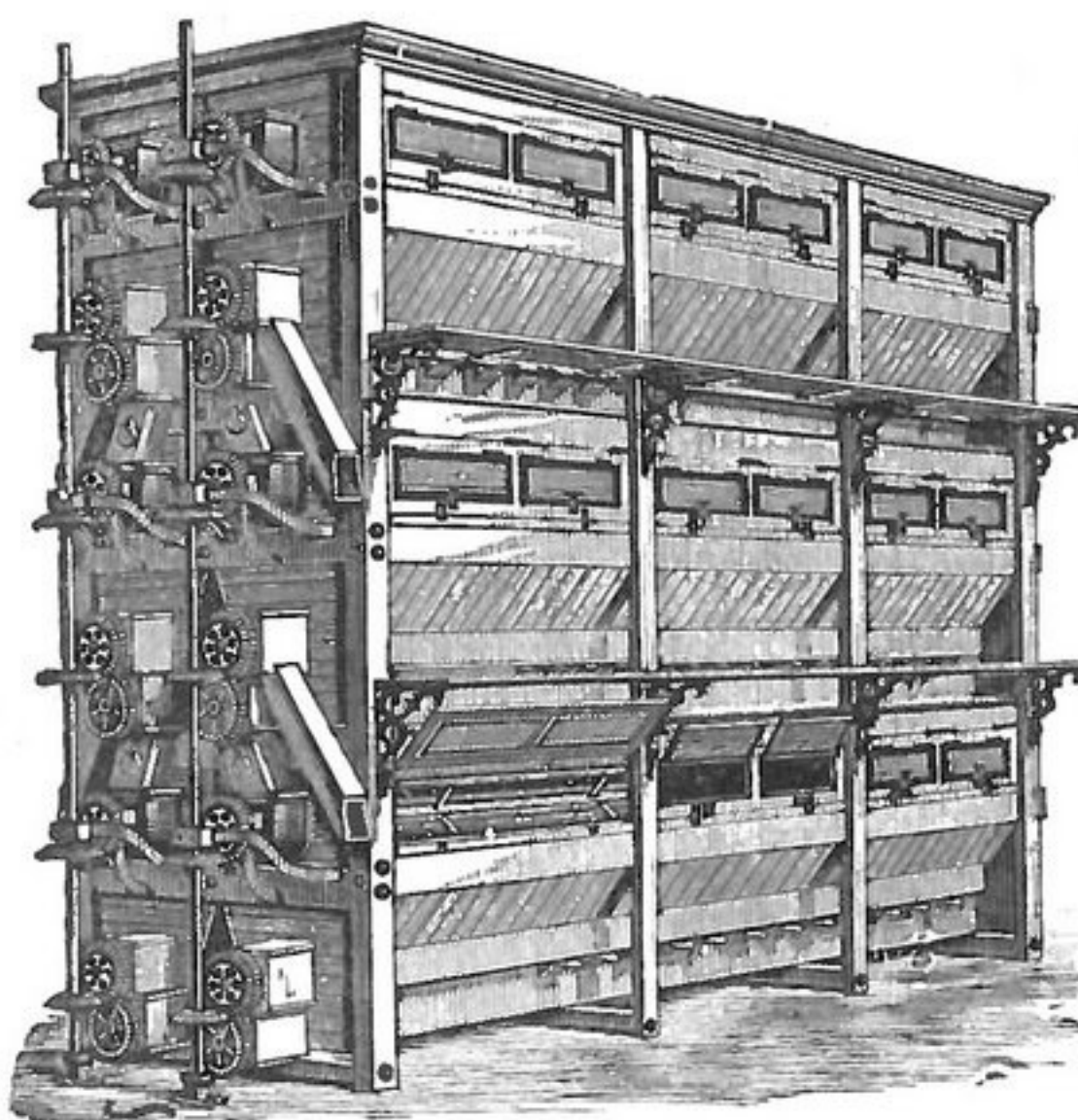
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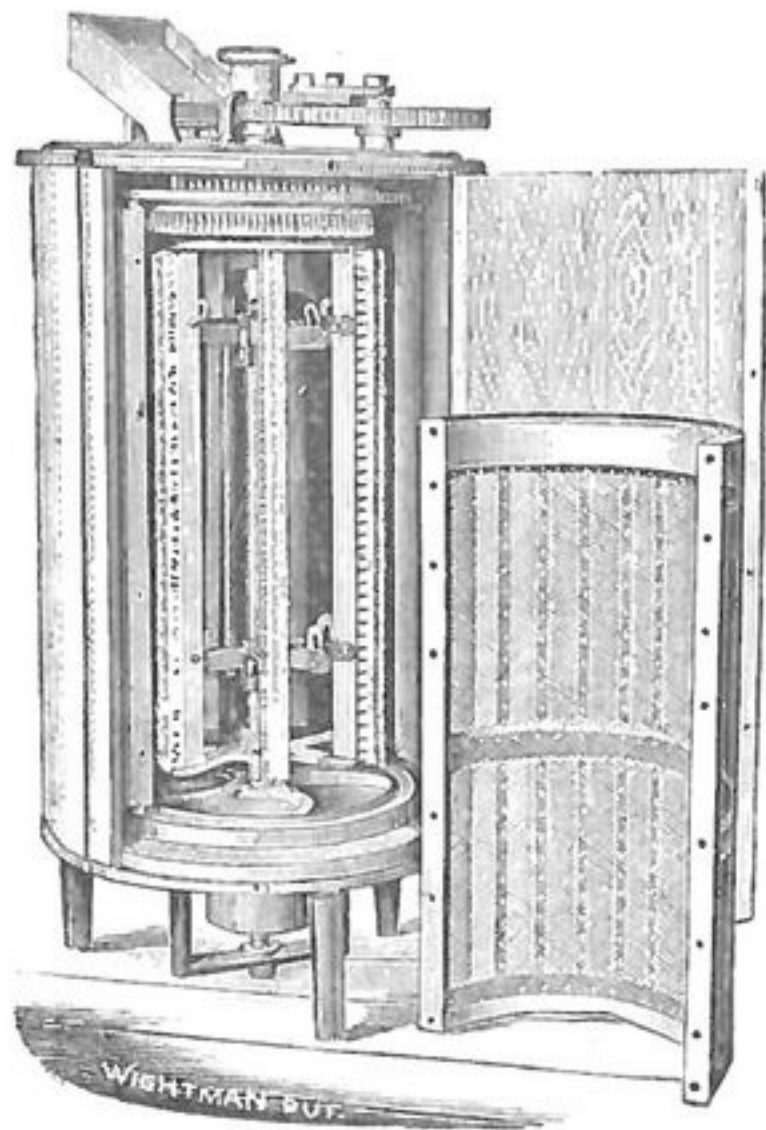
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